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# Delaware
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# CLINICAL NOTICES AND MEETINGS

**Psychiatry Seminars**

A seminar workshop series of 17 sessions (nine in Wilmington and eight in Dover) for non-psychiatric physicians sponsored by The Wilmington Medical Center, Jefferson Medical College and the Delaware Academy of General Practice will be held every Wednesday, 2-4 p.m., January 8-March 5, 1969, in the Wilmington General Division, WMC, and noon-2 p.m., January 15-March 12, 1969, in the Kent General Hospital, Dover. AAGP credits applicable: Wilmington programs, 18; Dover programs, 16. Fee: $20. For details, write: Mrs. Anne Shane, Exec. Sec., DAGP, 1925 Lovering Avenue, Wilmington, Del. 19806.

**Maternal and Child Health**

Postgraduate programs for pediatricians, obstetricians, and other physicians interested in receiving training in the field of Maternal and Child Health have been announced by the Division of Maternal and Child Health of the University of California School of Public Health. These programs all lead to the degree of master of Public Health. Tax-exempt fellowship support is available. Applications are now being accepted for the group entering in July or September, 1969. For information, write: Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, Cal. 94720.

**Anatomy and Surgery of the Hand**

A two-week course on *Anatomy and Surgery of the Hand* will be presented by the University of Pennsylvania School of Medicine Division of Graduate Medicine, January 20-31, 1969. Fee is $150.00 and the class is limited to 50 members. For details, write Office of the Director, Division of Graduate Medicine, Univ. of Pennsylvania, 237 Medical Laboratories Building, Phila., Pa. 19104.

**Postgraduate Course**

The Institute of Gastroenterology, Good Samaritan Hospital, and the Veterans Administration Hospital are co-sponsoring a postgraduate continuation course in *Gastroenterology,* February 21-22, 1969, at the Del Webb Townehouse, Phoenix, Arizona. Inquiries should be addressed to: David C. H. Sun, M.D., Good Samaritan Hospital, Phoenix, Ariz. 85002.

**American College of Physicians**

The ACP will present *The Internist and Total Cancer Care,* Jan. 20-24, 1969, at McGregor Memorial, Community Arts Center Wayne State University, Detroit, Michigan.

January 20-23, 1969; *Hormonal Regulation in Health and in Disease,* at Columbia University College of Physicians and Surgeons, 630 West 168th Street, New York City.

January 20-24, 1969; *Psychiatry and the Internist,* at Montefiore Hospital and Medical Center, Henry L. Moses Research Institute, 170 E. Gunhill Rd., Bronx, New York.

*Advances in Infectious Disease and Immunology* will be presented February 19-22, 1969, at Baylor University College of Medicine, Texas Medical Center, Houston, Texas. Fees are: Members, $60; nonmembers, $100. For information, write: Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine St., Phila., Pa. 19104.

**ACP Regional Meetings**

The American College of Physicians announces the following regional meetings:

*Downstate New York Regional,* Waldorf-Astoria Hotel, New York City, January 22, 1969.

*Virginia Regional,* Univ. of Virginia Hospital, Charlottesville, Va., February 15, 1969.

**Pennsylvania Society of Colon and Rectal Surgery**

The fourth meeting of the Pennsylvania Society of Colon and Rectal Surgery will be held Wednesday, March 5, 1969, at the Union League in Philadelphia. For further information, write: Frank H. Murray, Penn. Society of Colon and Rectal Surgery, 801 Madison St., Chester, Pa. 19013.

**Industrial Medicine**

The Jefferson Medical College and the Industrial Medical Association of Philadelphia will co-sponsor a course in Industrial Medicine to be held in Jefferson Hall every Thursday, 1:30-4:30 p.m., January 16-April 3, 1969. For information, write: John H. Killough, Ph.D., M.D., Associate Dean, Jefferson Medical College, 1025 Walnut St., Phila., Pa. 19107.

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# MEDICINE AND GOVERNMENT – PROBLEMS, PROGRESS, PROGNOSIS*

Philip R. Lee, M.D.

I have been asked to discuss medicine and government — problems, progress, prognosis. This is an assignment which would have been difficult only a little while ago, when it was thought rash to put medicine and government into any sort of joint category. These two sectors of the American society were far too long at odds. It took us too long to heed the biblical admonition: *"Agree with thine adversary quickly. . ."*

We are not adversaries, but partners. Misunderstanding is gradually giving way to mutual trust. Together, we are learning that we share the same aims, that we face the same problems, and that we must work together effectively for the improved welfare of the American people.

In four and one-half years in Washington, the Nation's capital has revealed itself as a stimulating, and at times, frustrating place to work. It has been a privilege to be in Washington during one of those rare periods in our history when there has been a burst of creative activity in both the Congress and the Executive Branch of Government. There were probably only two other periods in this century that were comparable — the first few years of President Woodrow Wilson's administration, and the famous "one hundred days" of President Franklin D. Roosevelt's administration in 1933.

In the spring of 1963, President Kennedy was stimulating a recalcitrant Congress to get the country moving. The Congressional response had not been impressive. Medicare had twice failed to pass in the Senate, and it had not even been reported out of the Ways and Means Committee to the floor of the House of Representatives for vote.

Health programs did not apparently occupy a high priority in domestic or international affairs. There was no national agreement on health goals or priorities. The medical profession, particularly the American Medical Association, was locked in a bitter debate with officials in the federal government.

Since 1963, however, more than 30 major laws directly affecting health manpower, facilities, services and research have been enacted by the Congress. Many other recently enacted laws, in such areas as highway safety, civil rights, economic opportunity, manpower development and training, and vocational rehabilitation, are also having an important impact on the health and well-being of the American people.

Expenditures for medical and health-related programs by the federal goverment have

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tripled since 1963. Most of this increase has been in programs administered by the Department of Health, Education, and Welfare. Expenditures by the department for these programs in this fiscal year alone will approach $10 billion. An additional $2.4 billion for health will be spent by the Department of Defense, the Veterans Administration and at least 15 other departments and agencies.

The variety of programs and their organizational locations, while a cause for some frustration and bewilderment, is a reflection of the fact that health programs have become increasingly important to the achievement of a variety of social and economic goals, in addition to those directly related to health.

To oversee the many health programs in the department, Secretary Gardner has proposed that the Office of the Under Secretary for Health be created in the Department of Health, Education, and Welfare. The marks further recognition of the growing importance of health of the affairs of the nation.

What have been the results of these efforts and expenditures? The results depend, in part, on your point of view. If your primary concern is better health for the American people, then there is growing evidence that the results already have been dramatic.

### Sensative Health Indicators

The most sensitive health indicators we have are infant and maternal mortality. For many years we have been among the leaders of the world in terms of a low maternal mortality rate. In our infant mortality rate, however, we have lagged far behind our potential. This may now be changing. In 1966 and 1967 we are recording the largest drop in infant mortality in more than ten years. The average annual drop in infant mortality had been approximately one percent per year. In 1966, the estimated rate was five percent below 1965, and the first six months of 1967 show that the rate of decline is continuing.

Not only is infant mortality dropping, but thousands of women of childbearing age are receiving first-class prenatal, maternity and post partum care, including family planning services, for the first time in their lives — thanks to Medicaid, maternal and child health programs, and more than 50 special maternal and infant care projects targeted into low income areas.

What are the other indicators of progress? More and more people in this country are now receiving the medical care they need with the same dignity and freedom of choice that until recently was available to only the more fortunate among us.

Let it not be supposed that such freedom is unimportant, that it comes cheaply, or that everybody wants it for everybody else.

### Intangible Benefits

Freedom of choice, dignity, equality of opportunity, access to services of high quality— these are all intangible benefits of Medicare, Medicaid and a number of other federally-supported medical care programs. The genius of Medicare and Medicaid is that they were brought into the existing system, rather than having created a totally new governmental mechanism for the provision of services. There are those who still doubt the capacity of our physicians and other health personnel to rise to the challenge of such programs; there are others who, without describing the benefits, claim they are too costly; there are those who believe that access to good health care is not, in fact, the right of all Americans. I prefer the the philosophy so well expressed by Secretary Gardner:

"I believe," he said, "that when we are being most true to ourselves as Americans, we are seeking a society in which every young person has the opportunity to grow to his full stature; a society in which every older person can live out his years in dignity; a society in which no one is irreparably damaged by circumstances that can be prevented.

"All too often we have been grievously unfaithful to these ideas. And that infidelity can be cured only by deeds. Such ideas cannot be said to be alive unless they live in the acts of men, unless they are embedded in our laws, our social institutions, our educational practices, our political habits, our ways of dealing with one another. We must act in the service of our beliefs."

Where does the medical profession fit into this picture? Where does the government fit? How do they work together to achieve this release of human potential, this enhancement of individual dignity?

The answers to these questions are determined by the goals we have set for ourselves. President Johnson proposed a national health target in his 1965 Message to Congress on advancing the nation's health:

"Our first concern must be to assure that the advance of medical knowledge leaves none behind. We can — and we must — strive now to assure the availability and accessibility of the best health care for all Americans, regardless of age or geography or economic status."

"With this as our goal, we must strengthen our nation's health facilities and services, assure the adequacy and quality of our health manpower, continue to assist our states and communities in meeting their health responsibilities, and respond alertly to the new hazards of our new and complex environment."

"We must, certainly, continue and intensify our health research and research facilities."

### The National Purpose

The President is not alone in this view. The Congress, in enacting the Comprehensive Health Planning and Public Health Services Amendments of 1966 (P.L. 89-749), declared: "Fulfillment of our national purpose depends on promoting and assuring the highest level of health attainable for every person, in an environment which contributes positively to healthful individual and family living . . ."

To achieve these goals, the medical profession must be in the forefront of change. It must alter its traditional patterns. It must work with government at all levels — local, state, and federal. It must join with others, in universities, in hospitals, in voluntary agencies, in insurance companies, in a variety of other disciplines. In short, it must follow the example of leadership that has been set by a number of individuals in this Medical Society of Delaware. The talent is surely here. It requires unending pursuit of our national health goals, which surely are shared by the majority of the medical profession. I am deeply distressed, however, by a number of physicians who appear to believe that some form of second class medical care is all that the poor deserve.

### Problems to Face

What are the problems that we in medicine face today and are likely to face in the decade ahead? Among the more important, I would include these:

(1) An inadequate base of fundamental knowledge on which to develop programs.

(2) A steadily mounting demand for health services.

(3) Health manpower shortages, combined with maldistribution and inefficient utilization.

(4) Rapidly rising medical prices and medical care costs.

(5) Aging and obsolete hospitals, particularly in urban areas.

(6) Inadequate organization and delivery of health services.

(7) Inadequate financial support for our medical and other health profession's schools.

What should be our response to these and other emerging health problems?

There are several major objectives of federal support, aimed at achieving the goals defined by the President and Congress.

(1) We must sustain and promote a vigorous research effort to step up our capability to deal with current and emerging problems, and accelerate the practical application of new knowledge.

(2) We must support programs to improve the quantity, quality and distribution of health manpower and facilities.

(3) We must stimulate and support those programs that act directly to improve the quality, the availability, the accessibility, the effectiveness and especially the appropriate utilization of health services.

(4) We must provide for those activities aimed at health problems which cannot be solved by clinical health methods, and find

new methods which can solve them.

In all of these areas, the medical profession has a major role to play. Money will also be required. In the future, as in the past, the federal government will be a significant supplier of funds to meet these objectives.

We hear a great deal these days about the rapidly rising costs of medical care, particularly for hospital services. The interest of the public in such matters is becoming intense. Costs are rising too rapidly.

### The Physician's Role

Any consideration of these rapidly rising medical care costs must include the important role played by physicians. In a sense, the physician is the patient's purchasing agent.

He can do much to affect patient admission to the hospital, the length of stay, use of diagnostic and therapeutic services, and the use of drugs. The medical profession must be more aware of its responsibility and must work to eliminate unnecessary patient expense.

It is unfortunate that the medical staffs of our hospitals have traditionally remained aloof from such mundane matters as operating costs and efficiency. This situation cannot continue. Ways must be found to involve the medical staff and hospital administrators in a cooperative endeavor to contain the rising costs.

We cannot separate the problems of cost, quality and utilization of services. In addition to demonstrating a greater concern with rising costs, the medical profession must find ways to improve its capacity to evaluate the proficiency and appropriateness of the practice of individual physicians. Critical peer review of this type has been initiated in a number of states.

To be most effective, this type of review must focus on physician education and prevention of abuse rather than acting simply as a grievance procedure after the fact. To give strength and vitality to this peer review process, it must be related to the payment for physicians' services. Moreover, the profession must develop more objective criteria of quality, better methods of data collection and analysis, and more effective means of discipline.

This type of surveillance and review needs to be supplemented by improved programs of continuing education of physicians and an acceptance by the profession of this responsibility.

### Recommended Reading

Many of these complex questions have been dealt with in detail in a new book by Professor and Mrs. Herman Somers of Princeton — *Medicare and the Hospitals.* They suggest several approaches to cost control:

(1) Stronger internal controls on the part of hospital management;

(2) experimentation with alternate forms of third-party reimbursement in an effort to avoid the automatic "cost pass through";

(3) stronger machinery for state and area-wide hospital planning; and

(4) some effective machinery for external monitoring and control of costs.

They also urge medical staff acceptance of a share of responsibility for the fiscal aspects of hospital operations, commensurate with its defacto authority.

This is an important book that I hope will receive careful consideration by the medical profession.

In closing, I would like to recall for you my favorite story about Sir Winston Churchill — the cheerful and devoted philosophy which he displayed to a group of temperance ladies when they called on him to protest his inordinate consumption of brandy.

"*Why, Mr. Churchill,*" *said one,* "*if all the liquor you consume in a year were poured into this room, it would fill it to there.*"

She pointed to a spot midway between the floor and the ceiling.

The Prime Minister gravely regarded the lady, the floor, the ceiling, and the spot she indicated.

"*So little done,*" he murmured, "*and so much to do.*"

# COMBINATION DRUG THERAPY IN HYPERTENSION

## A Look at Efficacy, Side Effects and Electrolyte Balance

• **Drugs are often used concomitantly in the treatment of many diseases. One of the most common uses of combination drug therapy is in the treatment of hypertension. This paper takes a look at the evidence supporting the use of such therapy.**

A. Douglas Bender, PhD.
Robert G. Familiar, M.S.

Not long after the introduction of the first effective antihypertensive agents in the early 1950's, Wilkins[1] noted that none appeared to be specific against the causes of essential hypertension and, that a more efficient control of blood pressure could be achieved with combinations of drugs, particularly in the more resistant patients. He used combinations of hydralazine, veratrum, and rauwolfia. At the same time, Freis et al[2] found that the concomitant administration of hexamethonium and hydralazine was better tolerated and more effective in a greater number of patients than the administration of a ganglion-blocker alone. In 1953, Schroeder et al[3] also noted that the same combination produced a more desirable hypotensive effect than either of the single agents used alone.

In the past ten years, a number of effective antihypertensive agents have been introduced, including the sympathetic blocking agents and the thiazide diuretics; none, however, alter the basic underlying mechanism of hypertension and as a result patients with moderate to severe hypertension may require two, and sometimes three, drugs given in combination. This communication looks, first, at evidence supporting the principle that combination therapy minimizes toxic side effects and provides optimal blood pressure lowering; and second, it looks at combinations designed to prevent excessive potassium loss that may occur in hypertensive patients treated with a potent oral thiazide diuretic.

The proper use of a combination in treating hypertension is best determined, among other considerations, by the severity of the hypertension and the degree of control desired. The cornerstone of a comprehensive program is a thiazide diuretic. Since their antihypertensive effect[4] was discovered, the thiazides have become the drugs of choice in the initial approach to the treatment of mild to moderate hypertension. In some patients it may be necessary to add reserpine or $\alpha$-methyldopa to the thiazide regimen in order to achieve control. Patients with moderate hypertension might require the addition of hydralazine to a thiazide diuretic and reserpine regimen, and those with severe hypertension might require the addition of hydralazine to an initial regimen of a thiazide diuretic and guanethidine or a thiazide diuretic and pargyline.[5]

Moyer and Brest[6] have shown that the addition of hydrochlorothiazide to a regimen of rauwolfia and a ganglion blocking agent increased the number of patients achieving normotensive levels by 20%. In another study by Brest,[7] hydralazine alone reduced blood pres-

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sure to normotensive levels in 11% of the patients studied, while combinations of chorothiazide and hydralazine or chlorothiazide and hydralazine and alseroxylon reduced blood pressure to normotensive levels in 47 to 63%, respectively. This result illustrates the stepwise increase in blood pressure control that can be achieved with the addition of other agents.

### Combination Therapy in Mild to Moderate Hypertension

The thiazide diuretics were introduced in 1957 and were subsequently found to be useful in the treatment of hypertension.[4] It was also shown that their antihypertensive effect was potentiated when they were administered in combination with various hypotensive agents including rauwolfia.[8] The major benefit of using these diuretics in hypertensive patients is that the dose of the more potent hypotensive agents can be reduced and undesirable side effects minimized.

The most extensively used combinations are those containing a thiazide and/or reserpine. Of the 34 combination products presently available for use in hypertension, 23 contain rauwolfia, 26 contain a diuretic and 16 contain both a thiazide and rauwolfia. Most authors are convinced that a thiazide reserpine combination reduces arterial pressure more than a thiazide alone, and that the combination produces a lower incidence of side effects. From an analysis of data in the literature[9-15] one might anticipate that adding reserpine to a thiazide regimen would further reduce blood pressure by about 9 mm Hg systolic and 6 mm Hg diastolic.

Smith et al[9] compared chlorothiazide to chlorothiazide - plus - rauwolfia and demonstrated a significantly greater reduction in mean blood pressure by the combination. Johnson et al[10] compared chlorothiazide to chorothiazide-and-reserpine and showed that the combination produced a further decrease in diastolic but not in systolic pressure. In a series of patients with severe hypertension, Klapper et al[16] found that chlorothalidone alone lowered blood pressure by 20 mm Hg or more in 72% of the patients while a combination of chlorthalidone and reserpine produced the same response in 87%. Kozma[17] observed that the effective dose of quinethazone could be reduced by at least 50% when it was administered with reserpine. In a study by Cromwell,[18] 170 hypertensive patients who could not be managed on rauwolfia drugs because of side effects showed a significant lowering of blood pressure and no adverse effects when given a combination of methyclothiazide and deserpidine.

Combinations of thiazide diuretics with such agents as spironolactone and triamterene are useful in the treatment of mild to moderate hypertension, principally to reduce the kaliuretic effect of the thiazides and thus limit their tendency to produce hypokalemia (see discussion below). The literature concerning spironolactone is conflicting. The magnitude of the antihypertensive action of spironolactone has been shown, by some, to be approximately equal to that of the thiazide diuretics,[19-20] while others have found the therapeutic effect of spironolactone to be no better than placebo.[21] Spironolactone has been shown to produce significant further lowering of systolic blood pressure, but not diastolic, when used in combination with a thiazide diuretic.[22] Spironolactone has also been shown to enhance the antihypertensive effect of reserpine or quanethidine.[23] Triamterene reduces blood pressure slightly though inconsistently,[24] but it does not enhance the hypotensive effect of hydrochlorothiazide.[25,26]

A combination of mebutamate and a thiazide diuretic has been reported to produce definite therapeutic effect in patients not responding to mebutamate alone.[27] Parsons[28] compared mebutamate to a mebutamate-hydrochorothiazide combination and found that the combination reduced blood pressure almost twice as much as mebutamate alone.

A combination of $\alpha$-methyldopa, a decarboxylase inhibitor, and hydrochlorothiazide has been recommended for the treatment of moderate hypertension.[29] With the combination of the diuretic and $\alpha$-methyldopa there was equal or better control of blood pressure and a 33% reduction in the dose of $\alpha$-methyldopa. The same combination was compared by Agnew et al[30] to a combination of reserpine and hydrochlorothiazide in patients with moderate hypertension. They found that the average decrease in blood pressure was the same for both regimens, but that the incidence of side effects on the *a*-methyldopa and hydrochlorothiazide regimen (50%) was greater than on the reserpine and hydrochlorothiazide regimen (28%).

### Combination Therapy in Moderate to Severe Hypertension

Treatment of patients with moderate to severe hypertension may require the addition of a ganglionic blocking drug to a regimen of rauwolfia and a thiazide. It has been shown repeatedly that both rauwolfia and thiazide compounds can potentiate the antihypertensive effect of the ganglionic blocking agents and diminish the incidence and severity of their side effects.[31-35] Side effects of a combination of hexamethonium and alseroxylon, including dizziness, constipation, anorexia and fatigue, were essentially the same as those of hexamethonium alone, but they were much less intense and more tolerable.[32] In a study by Tapia et al[34] ganglionic blockers caused constipation, dryness of mouth and blurred vision, but when given with chlorothiazide, the blockers caused fewer symptoms of parasympathetic blockade.

Recently, Moyer and Brest[6] compared the therapeutic effectiveness of four different ganglionic blocking drugs used in combination with rauwolfia and chlorothiazide, and found that such combinations reduced not only the dose requirement of the ganglionic blockers but also the incidence of associated side effects. In a Veterans Administration Cooperative Study[11] chlorothiazide was added to a regimen of reserpine and ganglionic blocking drugs in patients with moderate to severe hypertension. In 45% of the patients an average reduction of 10 mm Hg systolic and 4 mm Hg diastolic pressure was achieved. Also, the dosage of the ganglioplegic drugs could be reduced by half or less after chlorothiazide was added.

A combination of pargyline and methyclothiazide has been reported to produce a greater response than either drug alone, and causes fewer and less severe side effects.[36-37] Campione[38] used the combination in 39 patients with moderate to severe hypertension and found that it produced an average decrease of systolic/diastolic pressure of 16/6 mm Hg. Side effects of syncope, nervousness, insomnia, dry mouth and blood uric acid elevation were noted, but could usually be relieved by altering the dosage.

### Combination Therapy to Minimize Electrolyte Disturbances

The use of a thiazide diuretic increases potassium excretion. It is estimated that low serum potassium values may be encountered in as many as 40% of patients treated with chlorothiazide or hydrochlorothiazide without potassium supplements.[39] Recent studies have shown that this loss of potassium is associated with a decrease in total body potassium[40] and not merely with a redistribution of potassium stores. In rats, it has been shown that continued administration of hydrochlorothiazide significantly decreases potassium levels in the myocardium and kidney without affecting plasma electrolytes.[41] Hypokalemia resulting from prolonged therapy with diuretics may result in structural or functional disturbances in the kidney.[42] In order to protect against potassium loss, patients are usually advised to take supplementary potassium in the form of orange juice and bananas, or potassium salts. It is not known whether these procedures are adequate to protect against potassium loss.

Diuretics such as spironolactone and triamterene, which decrease potassium excretion, may be employed concomitantly with a thiazide diruetic to prevent potassium loss. For example, triamterene, when given concomitantly with a thiazide diuretic, has been shown to reduce the potassium excretion produced by thiazides.[43] The incidence of hypokalemia resulting from these two drugs (6%) is less than that from hydrochlorothiazide alone (20-40%).[44]

Drugs which are capable of reducing potassium excretion may elevate serum potassium levels. In edematous patients treated with a combination of triamterene and hydrochlorothiazide, serum potassium levels above 5.4 mEq/liter may be seen occasionally (7%) and appear to occur more often in the elderly.[45] In hypertensive patients, however, elevations in serum potassium are rare (2%).[44]

### Concluding Remarks

Hypertension is a disease of many etiologies with several degrees of severity. No single drug or combination of drugs can provide adequate treatment for all patients. Successful management may be obtained with effective and rational use of various combinations of drugs.

The literature has revealed that there are definite advantages in the use of combination therapy for hypertension. A greater number of patients can be controlled with an increased effectiveness in terms of reduction of blood pressure. In addition, side effects are frequently decreased in number and severity by combining lower doses of various hypotensive agents.

Patients with mild to moderately severe hypertension can usually be managed on a regimen of rauwolfia with an antihypertensive diuretic. Patients resistant to this regimen may be adequately controlled with $\alpha$-methyldopa plus a thiazide diuretic. More severe cases of hypertension may require a third antihypertensive agent in order to obtain a desired response. The ganglionic blocking drugs, for example, act synergistically with rauwolfia and the thiazide diuretics.

Since a loss of body potassium can occur on thiazide therapy, the concomitant use of a potassium sparing diuretic is sometimes useful.

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# FLUORIDATION

## The Issues in Delaware

**• Delaware is considering legislation which would require fluoridation of the public water supply in areas not now covered. The case for this action rests on economic as well as medical grounds. The large potential benefits derived could allow compensation for opponents.**

Paul Seidenstat, PhD.

Preventive dentistry is receiving increasing emphasis in the United States as more public health education effort is being exerted and as ever larger expenditures for dental care are being made. As incomes rise, substantial increases in outlays are made for dental care; for example, in 1963-64 over the country the dental visits per person with family income over $7,000 were more than double the visits of those whose family income ranged from $2,000 to $3,999.[1] In line with this trend, we in Delaware with our relatively high income level and above average formal education record are spending a sizeable amount for dental care. In fact, it is estimated that over $8 million is being spent here for dental purposes every year. One of the most effective ways presently available to dampen this mounting cost of dental care is the fluoridation of the public water supply.

In spite of the widespread acceptance of fluoridation as an effective preventive device, only about 40% of the Delaware population is served by fluoridated water; this represents about half of the population served by public water systems. Five water systems (the major ones are Wilmington, Newark, and Dover Air Force Base), serving less than 200,000 people add fluoride compounds to their water.[2] Another 200,000 people somewhat concentrated in New Castle County and serviced by public water systems do not get the benefits of fluoridation. Most of them are being served by private companies who are reluctant, under present circumstances, to enter this field. Thus, the question before the state is whether to take steps that would lead to the fluoridation of these privately operated public water systems. A bill in the state legislature allowing the State Board of Health to require fluoridation is pending. Relevant to the issue, is an analysis of the medical, economic, and political feasibility of fluoridation.

### Medical Evidence

The discovery of mottled enamel of teeth and its relationship to fluoride in water and significant immunity to dental caries in children led to the hypothesis that this immunity was due to water-borne fluoride. It was further argued that in proper concentration, the fluoride could be made effective without producing mottled enamel. Major statistical studies have seemed to verify this hypothesis, indicating that drinking water containing approximately one part per million of fluoride does provide important caries prevention and does not produce mottled enamel. Not only is this true of water with a natural fluoride constituent but also it seems consistent with the adding of fluoride compounds.

A number of epidemiological studies have been made to test the fluoridation hypothesis. These involved both comparing the incidence

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Dr. Seidenstat was formerly Assistant Professor of Economics, University of Delaware, and is now with Temple University.

Table 1

Distribution of Delaware Population by Source of Water Supply

| Population Group | Year | | | | |
|---|---|---|---|---|---|
| | 1966 | 1970 | 1975 | 1980 | 1985 |
| In public water system with fluoridation* | 190,000 | 220,000 | 250,000 | 280,000 | 310,000 |
| Outside public water system | 110,000 | 130,000 | 150,000 | 170,000 | 170,000 |
| In public water system without fluoridation | 200,000 | 250,000 | 300,000 | 350,000 | 400,000 |
| 14 and under** | ( 66,000) | ( 83,000) | (100,000) | (117,000) | (133,000) |
| ***Total Population | 500,000 | 600,000 | 700,000 | 800,000 | 880,000 |

*Assuming the following present distribution:
Newark system — 12,000 Wilmington system — 156,000 All other systems — 22,000
Also assuming a 20,000 increase every five years

**Assuming that this age group will, over the study period, constitute roughly a 33% share of the total population.

***Population projections based upon: Brown, H. C. and O'Connor, J. K., *Population In Delaware.* Newark, Del.: Division of Urban Affairs, University of Delaware, 1965.

of dental caries of children in areas with naturally fluoridated water and those without that element, as well as examining on a long-term basis the dental experiences in a region after fluoridation was effected. In this latter connection, a 15 year study of fluoridation in Grand Rapids, Michigan, compared cavity rates with those in Muskegon, Michigan, a non-fluoridated area. "After six years of observation the caries prevalence in young Grand Rapids' children had dropped significantly below that in the Muskegon control group and had reached nearly the level that had been observed in Aurora (a naturally fluoridated area)."[33]

In terms of specific caries reduction, the results seem to vary somewhat by age group. The Grand Rapid study seems to indicate that as much as a 54% reduction in the prevalence of dental caries in the deciduous teeth was observed in the fluoridated area compared to the unfluoridated one. For the permanent teeth, an average reduction of 60% in the caries rate might be assumed for a child to age 12.[4] The Maryland Study, while essentially affirming the Grand Rapids results, went on to say that children subject to fluoridation since birth had about one half the cavity attack rate as the children in non-fluoridated situations; the results were far less impressive if eruption had already begun at the time fluoridation began.[5] Not enough time has elapsed for most studies of artificially fluoridated water supplies to demonstrate the effects on adult teeth but a Colorado study comparing cities with and without natural fluoridation, found a substantially lower rate of caries inhibiting effectiveness to age 44.[6] The precise effects on adults (over 14 years) are still not clearly known except scattered evidence does suggest some lowering of cavity rates.

The cavity reducing effects of fluoride in the drinking water seem incontestable. Opponents, admitting this, nonetheless stress the harmful aspects of fluoride — a poison in concentrated form — on human health. However, the evidence is that in concentrations of 1.5 ppm or less, no ill effects of fluoride have yet been discerned. A number of studies point to this conclusion.

Low concentrations of fluoride in water does

Table 2

Direct Benefits of Fluoridation, 1967-1985

| Population and Mean Yearly Benefits Per Period | Five Year Period Ending 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|
| Benefitted group, 14 yrs. and under | 75,000 | 90,000 | 110,000 | 125,000 |
| Yearly benefits* | $225,000 | $270,000 | $330,000 | $375,000 |

*Derived by assuming children of this age group would have a minimum of 2 cavities per year and would spend $5 per cavity. Then if fluoridation just cut the cavity rate by 30%, $3 per year per child would be saved.

not seem to adversely affect skeletal development and performance. For example, no ill effects seem evident in the bone fracture experience, height, or weight of high school boys and young adult males. Additionally, no effect on the height and weight of children was observed. An elaborate study of 32 cities with naturally fluoridated waters revealed no significant difference in mortality rates.[7] The body processes of humans do not seem to allow a build up of fluorides since urinary elimination and perspiration allow escape.[8,9] A 1958 study indicated no evidence that death from nephritis was more common in people from fluoridated areas.[10] The overall conclusion of these many studies is that although the exact process of teeth protection is still unknown, the caries inhibiting effects of fluoride compounds in water are known and no adverse human side effects have been experienced.

**Economic Feasibility**

If the people of Delaware decide to take collective measures to reduce the incidence of dental caries, an evaluation of the benefits of such a program compared to its costs might usefully be attempted in order to evaluate the economic value of fluoridation compared to other alternative ways to accomplish the stated goal. Such an evaluation technique has become known as cost-benefit or cost effectiveness analysis. This technique has come into widespread use in the U. S. Department of Defense and is quickly spreading to the rest of the federal government.

The benefits of fluoridation accrue primarily to the individual in the form of reduced tooth decay and consequent dental work. A substantial part, therefore, of the benefits of fluoridation in monetary terms would be in the form of reduced expenditures for dental care than otherwise would be the case. What fol-

Table 3

Present Value of Fluoridation Benefits

| Year | Present Value of Benefits, Jan. 1, 1967 6% discount rate* |
|---|---|
| 1967 | $ 212,175 |
| 1968 | 200,250 |
| 1969 | 188,775 |
| 1970 | 178,200 |
| 1971 | 201,690 |
| 1972 | 190,350 |
| 1973 | 179,550 |
| 1974 | 169,290 |
| 1975 | 159,570 |
| 1976 | 184,140 |
| 1977 | 173,580 |
| 1978 | 164,000 |
| 1979 | 154,400 |
| 1980 | 145,860 |
| 1981 | 156,375 |
| 1982 | 147,375 |
| 1983 | 139,125 |
| 1984 | 131,250 |
| 1985 | 123,750 |
| Total | $3,199,705 |

*Assume that annual benefits accrue at the end of each year.

Table 4
Present Value of Variable Cost
of Fluoridation, 1967-1985

| Year | Mean Annual Costs* | Present Value of Costs** |
|---|---|---|
| 1967 | $15,000 | $ 14,145 |
| 1968 | 15,000 | 13,350 |
| 1969 | 15,000 | 12,585 |
| 1970 | 15,000 | 11,880 |
| 1971 | 18,000 | 13,446 |
| 1972 | 18,000 | 12,690 |
| 1973 | 18,000 | 11,970 |
| 1974 | 18,000 | 11,286 |
| 1975 | 18,000 | 10,638 |
| 1976 | 22,000 | 12,276 |
| 1977 | 22,000 | 11,572 |
| 1978 | 22,000 | 10,934 |
| 1979 | 22,000 | 10,296 |
| 1980 | 22,000 | 9,724 |
| 1981 | 25,000 | 10,425 |
| 1982 | 25,000 | 9,825 |
| 1983 | 25,000 | 9,275 |
| 1984 | 25,000 | 8,750 |
| 1985 | 25,000 | 8,250 |
|  | Total | $213,317 |

*Assume a mean cost for each five year period. Also assume that the cost of fluoride added in a one ppm concentration amounts to about $1 per million gallons of water treated. If water used amounts to 137 gal/day/person this amounts to about 0.018¢ per person/year. But this per person cost should be multiplied by 3 to account for the fact that only children 14 or under are assumed to benefit and further multiplied by 350 to account for the actual ingestion of water by children of around 2½ quarts per day. Thus, a high estimate of 20¢/person/year is used in measuring fluoridation costs.

**Using a 6% rate of discount.

lows is an attempt to assess fluoridation benefits in Delaware until 1985, assuming that January 1, 1967, is the date of implementation.

In the process of calculating the savings in dental expenditures in Delaware via fluoridation, some estimate of the number of people to be affected has to be made. Table 1, below, estimates the numbers in public water systems without fluoridation and the age 14 and under subset of this population.

If benefits in the form of reduced expenditures on dental care are only attributed to 14 and under age group, Table 2 estimates these benefits through 1985.

These yearly benefits so derived relate to a stream of 19 years. Table 3 relates all the benefits to a given date, January 1, 1967, by discounting by a suitable rate of interest — assumed here to be 6%.[11]

Thus measured as of the beginning of 1967, total benefits of fluoridation through 1985 amount to over $3 million. These benefits only have significance in relation to the costs of fluoridation over the same period. Table 4 estimates the present value of yearly variable costs in operating a fluoridation activity.

If to these operating costs are added the installation costs of the fluoridation equipment, estimated to be no more than $15,000, on January 1, 1967, then the total costs on a present value basis would be $228,317. Table 5 compares these costs and benefits.

Table 5
Benefit-Cost Ratio of Fluoridation
in Delaware, 1967-1985

|  |  |
|---|---|
| Benefits | $3,199,705 |
| Costs | $ 228,317 |
| Benefit/Cost | 14.01 |

Fluoridation is clearly economically feasible in Delaware. Of course, many of these figures are only educated guesses. The benefits would change if the incidence of cavities among Delaware children were different or if dental costs per cavity deviated. Also the caries reduction rate could likewise differ and people over 14 might benefit as well. Other individual or social benefits might be included; for example, a lower incidence of false teeth, extractions, or a desire for purely cosmetic services like capping teeth, etc. On the surface it might seem that the figures in this report considerably underestimate the level of benefits, especially by cutting off the period in 1985 since the yearly net benefits are positive and large.

By the same token, errors could be in evidence in cost estimation but here the probability is less. Only if major changes should occur in prices of fluoride compounds or water ingestion rates would a major overestimation of costs be probable. Explicitly ruled out is any significant damage to plumbing since there is no evidence available to demonstrate it. Therefore, it is highly likely that the benefit-cost ratio may be a considerable underestimate.

To say, however, that fluoridation is economically feasible may not represent sufficient evidence that it is the optimal alternative open to the community to reduce the incidence of dental caries. Other alternatives are available. These include topical applications of fluoride solutions to erupted teeth by dentists, fluoride supplements to the diet, the heavy use of foods rich in fluorides like tea and seafood, and the use or ingestion of fluoridated products like milk, bottled water, tooth paste, etc. The available evidence suggests, however, that these alternatives would all have lower benefit-cost ratios than fluoridated water owing to either their higher costs, smaller benefits — as they are not as effective — or both.

#### Political Feasibility

Even though fluoridation has generally been proven to be economically feasible over the country, the major problem of putting it into operation has been a political one; the same obstacle could be expected in Delaware. There are typically several groups of objectors to fluoridation. Aside from small groups that see this as a Communist conspiracy to poison us, the bulk of opponents take one of several positions. One stand it that this is an overreaching of government authority. Another view is that there would be harmful effects on human health. A third complaint, especially held by Christian Scientists, is that religious convictions are violated.

When fluoridation's legality has been tested, the courts have generally ignored these objections. The state or its political subdivision has been defended in its action under its police powers to protect and advance the common good. In this case the interests of the majority have been allowed to overrule those of the objectors.

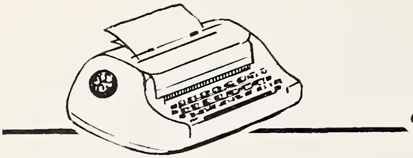
Fluoridation is legal in Delaware. The problem here will be to convince the population not presently in a fluoridation system of its merits, to overcome the objections of the opponents, and to choose a suitable political instrument to effectuate it.

Certainly a major education effort is involved in winning the fight for fluoridation but more important might be how the opponents are handled. Should the people who would feel a loss if forced to use a fluoridated water supply be offered no compensation if fluoridation wins? With such compensation the intensity of their opposition might be diminished and their deeply felt hurt might be averted, making the battle easier to win.

Specifically, all objectors to fluoridation could be offered bottled, nonfluoridated water. If the benefits to the community are as estimated, the taxpayer could well afford to furnish this water and still retain large net benefits. The costs of providing this bottled water would undoubtedly prove to be relatively small; for example, the annual costs of supplying 1,000 people with bottled water would be about $8,000. (This assumes water priced at 30¢/1,000 gals. and a per capita yearly ingestion of 270 gallons.) Of course, if a relatively large number of people elect compensation, the net benefits to the gainers could fall to the point where other fluoride-use alternatives become superior methods.

With the offer of compensation to potential losers, the particular political instrument to gain a favorable decision would be less critical. On the basis of finding out the "public will" a referendum would seem to be more desirable than either legislation or directives by the Board of Health. These latter two means would seem to be an attempt to fight the opponents on grounds less favorable to them. However, whatever political means is used to gain fluoridation, the medical and economic arguments would seem to weigh heavily in favor of it. It is a major challenge to the community to reach a rapprochement with opponents whatever the basic of their opposition and thus to secure the seemingly large net benefits of fluoridated water for the children and grandchildren of the present generation.

(Continued on Page 16)



# Special Reports

**In this issue we are pleased to present "Special Reports" of recent meetings attended by Society members and kindly summarized for their colleagues. In coming issues similar reports by doctors will appear. We thank these doctors for their contributions and encourage other physicians to do likewise.**

## SYMPOSIUM ON PEDIATRIC CANCER

Toronto, Canada, September, 1967

HERMAN ROSENBLUM, M.D.

Statistics on morbidity of cancer in children vary with the country under discussion. For example, in Scotland 100 children per 1,000,000 children die each year from cancer. In the United States cancer is the major cause of death other than accidents; approximately 12% per thousand deaths in children are from cancer.

### Wilms' Tumors

Dr. Alexander Bill discussed Wilms' Tumors, pointing out that Wilms' tumor is the third most common tumor in children secondary only to the central nervous system tumors and neuroblastomas. Nephrogenic arrests are frequently found in newborn kidneys but usually disappear by 8-10 months. These arrests may be multicentric as well as bilateral. Six per cent of patients with Wilms' tumors have bilateral disease so that at the time of surgery the contralateral kidney should be explored and a solitary metastasis removed if present. Chemotherapy should be given at operation. The present cure rate is approximately 37%. Radiologic diagnosis is extremely important. The peripheral calcification in Wilms' tumor is in contra-distinction to the pepper and salt type of calcification in neuroblastomas.

Dr. G. J. D'Angio recommends that intravenous pyelography be done utilizing an ankle vein so that a simultaneous inferior vena cavagram is achieved. Cure rate from a therapeutic program which includes x-ray as well as actinomycin D seems to be increased. Dr. Farber in 1966 reported 81% two-year survival with this combination therapy. The cure rate was 58% in those in which there was metastasis at the time of diagnosis. These patients represented 45% of his series. Actinomycin D therapy is begun immediately after surgery in a dose of 75 mcg per kilogram over a 5-day period. This treatment is actually started in the operating room. Chest x-ray is performed at frequent intervals during the next two years. Pulmonary metastasis may clear dramatically with combination of actinomycin D and radiation therapy. Vincristine seems to give a smaller cure rate.

### Neuroblastoma

Neuroblastoma has the highest rate of regression of all pediatric tumors. As with Wilms' tumor the highest cure rate occurs in the youngest infants. Patients less than one year of age at the time of diagnosis have a 50% cure rate. Whether this spontaneous cure is due to a natural disappearance of the tumor with maturing of the organism or due to an immune reaction is currently under study. Neuroblastomas of the neck and thoracic area have a better prognosis than those of the adrenal area. A frequent clinical presentation is proptosis with eyelid ecchymoses. Occasionally death in these patients has resulted from post-irradiation nephritis.

Chemotherapy being used by Dr. Audrey Evans is a combination of vincristine and cytoxan as well as nitrogen mustard.

### Rhabdomyosarcoma

This is a particularly infiltrating type of tumor which is usually found to have spread further than expected at the time of surgery. In a series of 46, 34 occurred in the GU system even in areas where striated muscle does not exist, as in the bladder. Therapy varies with the location. X-ray therapy combined with surgical removal when possible is the most frequently used therapy although there is some evidence that actinomycin D may be of help. Bone and prostate rhabdomyosarcomas have the worst prognosis. The panel which included Dr. Alexander Bill, Dr. G. J. D'Angio and Dr. Audrey Evans were in agreement that preoperative x-ray therapy was to be avoided. They also agreed that chemo-therapy and x-radiation of the tumors, even when not curative, increased patient comfort. Uric acid nephropathy has not been a common-complication of treatment as it was with therapy of leukemia.

### Lymphomas

Lymphangiography was advised in all cases of lymphomas since it is of great value in picking up intra-abdominal lesions not otherwise detectable. Various chemotherapeutic agents are used, namely the alkylating and sterid agents. Allopurinol may prevent the rise in uric acid occurring during treatment. Diagnosis may sometimes be very difficult.

### Leukemia

In the period from 1946-1947, average duration of life after diagnosis was less than three months but in 1963-1966 had increased to forty-two months. Cytoxan gives approximately a 30% remission rate after drug resistance to other agents has developed. Vincristine seems to be one of the best agents with a remission rate of over 80% in patients not previously treated and 40% after previous treatment with relapse. Statistically at present, there seems to be no difference between cyclic, sequential, or multiple agent therapy. High dosage of methotrexate does not seem to have a statistical advantage.

Dr. Audrey Evans is presently studying vincristine and cytosine arabinoside. It is felt that residual cells, the so-called sanctuary cells, make complete cure difficult. Despite periodic reports in the lay press, no etiological curative agent has been found for leukemia.

### The Reticuloendothelioses

In contrast to Wilms' tumor the earlier the age of onset, the greater the mortality. With the use of vinblastine, survival seems to have been increased. Characteristic of many of these patients is a pulmonary honeycombing which may cause pneumothorax.

## INTERNATIONAL CYSTIC FIBROSIS ASSOCIATION

**Children's Hospital of D.C., September, 1967**

HERMAN ROSENBLUM, M.D.

*Preliminary Report on Diagnostic Survey, Prince Edward Island."* — C. Terrence Gillespie, M.D., Halifax, N. S., Canada.

Dr. C. Terrence Gillespie reported an interesting study in which the entire child population of Prince Edward Island was screened by a skin resistance method for cystic fibrosis. Approximately 200 patients per hour could be studied so that the study was completed in approximately one month. Over 90% of the child population was included. If a level of more than 30 mEq. of chloride was obtained the child was subjected to an iontophoretic study. In the survey, the incidence of cystic fibrosis was found to be 1 per 1000 live births. It was emphasized that the incidence of this disease is very variable geographically. In Sweden, for example, it is presently estimated to be 1 in 10,000 while in some areas of the United States it is 1 in 2,000.

*"Clinical Aspects of Diagnosis and Treatment in a Large Canadian Cystic Fibrosis Clinic."* — Douglas N. Crozier, M.D., Toronto, Ontario, Canada.

At the Toronto Sick Children's Hospital, approximately 250 patients are being followed with cystic fibrosis. The cost for care of these patients is approximately $286,000 per year.

*"Intestinal Absorption of Medium-Chain Triglycerides in Infants and Children."* — Richard Goldbloom, M.D., Montreal, Canada.

Preliminary study of therapy with medium-chain triglycerides indicate a definite decrease in fecal fat provided the preparation was accepted by the patient. Most patients will still require the addition of pancreatic enzymes. In meconium ileus, medium-chain triglycerides seem particularly helpful.

*"Observations on Electrolyte Secretion by the Pancreas in Cystic Fibrosis, and Some Fresh Thoughts on Pathogenesis."* — Charlotte Anderson, M.D., Melbourne, Australia.

Dr. Anderson's paper was particularly interesting because it postulated for the first time a reasonable explanation for the thick mucus which occurs in cystic fibrosis. In patients with cystic fibrosis study of duodenal fluid showed a decreased volume and a decreased bicarbonate content even without altered enzymes. She theorizes, therefore, that in cystic fibrosis there is a deficiency of a "permeability factor" which leads to insufficient dilution of the organic material in the secretions of the different glands involved so that a thicker, more viscid secretion is produced.

*"Recent Developments in Therapy."* — Chairman: Harry Shwachman, M.D., Boston, Massachusetts.

The panel emphasized that therapy in cystic fibrosis should be started before irreversible pulmonary changes occur; this necessitates early diagnosis and a comprehensive prophylactic program. The mist tent has been found especially helpful in therapy. No statistical difference in therapeutic efficacy between mucolytic agents has been found.

Dr. Khaw of Boston, Children's Hospital, reported that his experience with bronchial lavage with N-Acetylcystein did not indicate that the procedure was warranted. Dr. Samuel Schuster reported on the treatment of portal hypertension associated with cystic fibrosis. He does not recommend surgical correction of esophageal varices which have not bled. When surgery is necessary, a side-to-side portocaval shunt is preferred. If there is evidence of hypersplenism, a splenctomy should be simultaneously performed.

*"New Developments in Cystic Fibrosis"* — Chairman: Paul A. di Sant'Agnese, M.D., Bethesda, Maryland.

Dr. John A. Mangos reviewed his research of inhibition of sodium reabsorption with cystic fibrosis. He demonstrated inhibition of sodium reabsorption in the rat parotid gland by means of injections of cystic fibrotic's saliva and sweat. Dr. Ernest Cotton has found pulmonary hypertension with cystic fibrosis to be decreased by therapy with Priscoline.

Dr. Robert Schwartz has studied albumin metabolism in cystic fibrosis and concluded that the hypoalbuminemia present in many of these patients does not represent a decreased capacity for synthesis, but rather malabsorption and maldigestion.

Dr. David Lawson described a rapid method for detection of cystic fibrosis utilizing a sodium sensitive salivary electrode. Normal values are less than 12 mEq of salivary sodium. In the age group of under one week values range up to 30; 6-week values range up to 20; after four months, however, values are normal except in those with cystic fibrosis.

Dr. Louis Kopito warned against legislating screening programs for cystic fibrosis without adequate study and evaluation of conflicting data.

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### FLUORIDATION

(Continued from Page 13)

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# Highlights

**Highlights of recent meetings are presented for the first time in this issue. Members of our Society are urged to send in abstracts of their presentations so that this may be continued as a regular feature of the Journal.**

## ADVANCES IN RADIATION THERAPY

Carlo A. Cuccia, M.D. — *Medical Conference, Wilmington Medical Center, November, 1967*

The various indications for radiation therapy were discussed. It was emphasized that both modern and traditional radiation therapy find a place in the treatment of cancer. The availability of megavoltage therapy has considerably facilitated the treatment of deep-seated tumors, enhancing the survival of the patients affected by these tumors. On the other hand, intracavitary and interstitial radium, or gamma emitting isotopes remain the mainstay for more accessible and earlier lesions.

The relationship between radiation therapy and surgery was discussed, stressing the importance of the cooperative efforts of the two disciplines in the handling of cancer of some particular locations. Several illustrative cases of neoplastic lesions treated with radiation were presented.

The present plans of the Wilmington Medical Center for the development of a Tumor Institute and of a new Department of Radiation Therapy were presented. In doing so, the importance of unified cancer therapy was stressed.

## GENETICS AND THE CLINICIAN

Irving J. Olshin, M.D. — *Hempstead, New York. Pediatric Conference, Wilmington Medical Center, September, 1967*

The pediatrician should chart family pedigrees as part of his history taking particularly when a patient presents with any congenital abnormality.

Genetic transmission of abnormalities may follow dominant, recessive, or sex-linked patterns.

An example of a dominant hereditary mechanism is to be found in Waardenburg's Syndrome, first described in 1951. It consists of eighth nerve deafness, heterochromia of the iris, lateral displacement of the medial canthus which mimics hypertelorism, but is different from it and a white forelock. Any of all of the above abnormalities may be present in an affected patient, but even the presence of only one of the abnormalities indicates that the person is carrying the mutant gene and can transmit it to his offspring. The heredity of this syndrome follows that of an autosomal dominant. The characteristics of this type of genetic inheritance are as follows: (1) The defects are usually structural rather than metabolic. (2) The transmission is vertical; ie, cases tend to appear in every generation. (3) 50% of the offspring of an affected person can be expected to be affected, and 50% normal. (4) The unaffected offspring do not carry the disease.

This latter principle is important for genetic counselling, but its value is tempered by the possibility of incomplete penetrance: an abnormal gene may express itself in such a minimal fashion or even be inapparent in one generation but flower fully in the next.

In contrast to the dominant pattern, recessively inherited defects are horizontally transmitted: both parents are normal and the family history unusually negative. In such hereditary defects, 25% of the offspring can be expected to be abnormal; 50% will appear normal but carry the defective genes, and 25% will be completely normal. Examples of recessively transmitted abnormalities include phenylketonuria (due to a lack of the hydroxylase necessary to metabolize phenylalanine to tryosine) and congenital adrenal hyperplasia.

Sex-linked genetic abnormalities, of which the best known examples are classical hemophilia and red-green colorblindness, are dependent upon a mutant gene on the X chromosome. In each generation, only men will be affected, but unaffected women may be carriers. It is, therefore, more logical to determine family histories in evaluating a patient for a possible coagulation defect, with particular emphasis on maternal uncles, than to do a bleeding or clotting time.

## THE RELATIONSHIP OF THE BACTERIAL FLORA OF THE SMALL INTESTINE TO MALABSORPTION

Franz Goldstein, M.D., — *Jefferson Medical College. Medical Conference, Wilmington Medical Center, September, 1967*

There has been a reawakening of interest, in recent years, in the bacterial flora of the small intestine and its relationship to malabsorption. In normal individuals, the small bowel lumen is devoid of a resident bacterial flora. Approximately 50% of cultures are sterile, and the remainder yield small numbers of various bacteria rarely exceeding $10^5$ colony forming units (CFU)/ml, believed to be in transit from the nasopharynx. Whenever stasis of small bowel contents occurs, bacteria rapidly proliferate in the small bowel lumen and may reach numbers ordinarily found in the colon. When the small bowel is colonized by large numbers of bacteria, intestinal function is impaired and malabsorption is apt to ensue. This situation is classically represented by the "blind loop syndrome." Variants of this syndrome include small bowel diverticulosis, postgastrectomy steatorrhea and intestinal scleroderma.

Cultures of afferent loop contents of 15 postgastrectomy patients without steatorrhea showed a median of $4 \times 10^5$ CFU/ml, compared to a median of $2.7 \times 10^7$ CFU/ml in 15 postgastrectomy patients with steatorrhea ($P. < 0.001$). The administration of antibiotics selected on the basis of determined sensitivities of the recovered bacteria usually reduces the bacterial counts to normal ranges and brings about improvement in absorptive function and in nutritional status. Patients who have proved refractory to antibiotic treatment have been successfully treated surgically by means of a jejunal interposition operation.

Multiple diverticula of the small bowel, and even single large duodenal diverticula, may be associated with malabsorption syndrome. Not only the lumen of the diverticula, but the entire small bowel lumen is heavily colonized with bacteria in such cases. Intermittent short courses of antibiotics, appropriately selected, are the treatment of choice and are generally quite effective. Most patients thus treated eventually enter clinical remissions without the need for further antibiotic treatment.

In severe cases of the blind loop syndrome and its variants, absorptive defects are multiple and involve fat, carbohydrate, iron, vitamin $B_{12}$ and other nutrients. Hypocalcemia, hypomagnesemia and hypoproteinemia may also be present. The absolute amount of fat excreted in stools is often less than the values found in patients with pancreatic insufficiency or sprue. However, because of the anorexia and consequent poor food and fat intake, the coefficient of fat absorption may be very low.

The reason why some but not all patients with small bowel diverticula develop malabsorption is not clear, but is related to the degree of bacterial proliferation. The mechanisms by which bacteria interfere with absorption are also not entirely clear. Bacteria utilize vitamin $B_{12}$, d-xylose, and probably other nutrients, for their own metabolism and thus make them unavailable to the human host. The observed steatorrhea appears related to bacterial-induced hydrolysis of bile acid conjugates and the resultant impairment of micelle formation which is a prerequisite for normal fat absorption. Free bile acids may also exert a direct toxic effect on the bowel mucosa. Breakdown products of bile acid metabolism, such as lithocholic acid, may form and they, too, are toxic, and may be responsible for the observed malaise, anorexia and low grade fever.

Patients with diabetic steatorrhea do not, usually, manifest abnormal bacterial growth in the small bowel, unless there is associated gastric atony (gastroparesis).

No specific bacteria have been identified as causative of malabsorption and the type of flora usually encountered closely resembles the normal colonic flora.

## CHEMOTHERAPY OF CANCER

ROBERT L. MECKELNBERG, M.D., *Wilmington. Milford Medical Seminar, October, 1967*

Two new concepts were discussed at this meeting. They were the concept of total malignant cell kill by the repeated use of effective chemotherapeutic agents, such as is now being done in acute leukemia. It has been assumed that there is a fairly definite number of tumor cells present in a patient when he develops clinical evidence of disease such as acute leukemia, and since it has been fairly well established that an effective drug will always destroy approximately the same percentage of cells present each time it is administered, it is thus possible the drug can be administered frequently enough to reduce the total malignant cell population to zero by sequentially taking off the same percentage amount of cells from the reducing cell population.

Some time was also spent in the discussion of the efficacious use of different combinations of chemotherapeutic agents to attack different metabolic pathways that the tumor may utilize for synthesis, and also the combination of drugs that have different side effects in the body so that both can be used together in full dosage, and thereby not double the detrimental effect on the patient's normal tissues. An example of this would be using nitrogen mustard and prednisone in combination at full dosage, where the nitrogen mustard has an effect on the bone marrow but the prednisone has none, as opposed to using nitrogen mustard in combination with methotrexate where both drugs have a toxic effect on normal bone marrow.

The concept of total cell kill was then brought over to the solid tumor field, where a discussion was held on the early, intensive treatment of incipient metastatic disease; that is, malignancy either known or strongly suspected to be beyond the reach of the surgeon's knife or irradiation, and which has not, as yet, manifested itself in clinical symptoms. This concept is at the present time being explored in controlled studies in various clinical centers.

The humeral control of cancer was then discussed, and the preliminary clinical trials of the immunization of a controlled subject with the patient's tumor, and then the reinfusion of the sensitized antibodies and white cells of the controlled subject back into the patient to attack the surface of the cells in the primary tumor. This work to date has developed along the routine immunologic lines, and perhaps with some sophisticated modifications may hold promise in the adjuvant treatment of disseminated cancer.

Finally, the Watkins pump was demonstrated and explained for its role in the use of intra-arterial infusion in the control of localized, but otherwise inoperable, or radioinsensitive tumors.

## THE ABC's OF IRON METABOLISM IN THE DIAGNOSIS AND TREATMENT OF ANEMIA

WILLIAM E. BARRY, M.D., — *Temple University. Academy of General Practice Fall Course, September, 1967*

The average daily diet contains 15 mg of iron of which approximately 10% is absorbed. The so-called "mucosal block" is actually subject to body regulation; iron absorption is increased in the presence of iron deficiency or when erythropoesis is increased for any reason. Transferrin (siderophyllin) is the specific transport protein for iron to and from the reticuloendothelial system (RES) in the bone marrow. The anemia associated with infection or chronic disease occurs because of an as yet poorly understood block in the transport of storage iron to the bone marrow. The study of iron metabolism has contributed much to the understanding of drug mechanisms. During chloramphenicol administration, there is an increase in iron-binding capacity indicating a pharmacologic effect by chloramphenicol of reduced bone marrow activity; this action occurs universally and is distinct from the occasional hypersensitivity action resulting aplastic anemia.

In iron deficiency states, the first decrease occurs in iron stores; anemia is the last step in the process of iron depletion. After the initial depletion of iron stores, a decrease in plasma iron precedes a decrease in visible sideroblasts in the bone marrow which in turn precedes a change in red morphology and subsequent development of anemia. Siderocytes, erythrocytes containing visible iron particles, are rarely seen in peripheral blood except in disease states unless splenectomy has been performed although some are normally visible in the bone marrow. Bone marrow stains for iron are the best index of general iron stores.

Measurement of plasma iron and total iron-binding capacity is frequently of help in the differential diagnosis of anemias. Plasma iron is ordinarily higher in males than in females; in both, plasma iron is normally one-third of total iron-binding capacity. Since there is a diurnal variation in serum iron, it may be clinically important to draw specimens for analysis at the same time each day although this is less important in disease states in which the diurnal variation of serum iron seems to be lost.

The anemia of pregnancy is almost always an iron deficiency disease but, especially in the latter stages of pregnancy, may be very difficult to treat since almost all iron absorbed by the mother is diverted to the fetus. It may be treated as satisfactorily with large doses of oral iron as with parenteral iron; the therapeutic response is not appreciably different.

Most clinical situations of iron deficit may be adequately treated with oral iron. A therapeutic trial of iron is frequently indicated as a prelude to more complex evaluations of the patient. However, iron in adequate amounts should cause an increase in hemoglobin within three or four weeks even though a complete restitution of the anemia may take longer.

Disorders of iron utilization may be divided into defects of iron transport (example: infection and chronic disease); defects in intramedullary iron transport (example: chloramphenicol administration); defects in hemoglobin synthesis (examples: thalassemia, pyridoxine responsive anemia, lead poisoning, iron deficiency anemia). Refractory anemia with disturbed iron metabolism is best referred to as "refractory sideroblastic anemia" although previous nomenclature for this entity includes the term sideroachrestic anemia and hypochromic hypersideremic anemia. In this situation, iron is present, even excessively, in the RES but an anemia morphologically similar to iron deficiency anemia is present.

Isotopes of iron, $Fe^{59}$, and $Fe^{55}$ may be of use in the study of anemia. In iron deficiency anemia, an injected tracer dose of $Fe^{59}$ is rapidly removed from the plasma but disappears from the bone marrow at a normal rate. With hemolytic anemia, iron is also rapidly removed from the plasma but also disappears rapidly from the bone marrow. With bone marrow hypoplasia, the tracer dose disappears more slowly than normal from the plasma. Studies of iron absorption are best accomplished by a double isotope technique in which $Fe^{55}$ is administered by mouth and $Fe^{59}$ by vein. The ratio of both isotopes in the bone marrow is an index of iron absorption through the gut wall. Iron metabolism may be most easily studied with a whole body scintillation counter but these are rare instruments which are presently available in very few clinical centers.

Problems of acute iron toxicity as with the accidental ingestion of iron tablets may be treated with Desferal, a chelating agent which increases iron excretion in the urine. However, since the maximum excretion achieved is in the neighborhood of 10 to 20 mg of iron per day, this method of depleting body iron is not satisfactory for the treatment of excessive iron stores such as occur in hemochromatosis in which phlebotomy which achieves a loss of 250 mg of iron per 50 cc of blood represents a more satisfactory method of decreasing iron overload.

# President's Page

## PERSONAL HEALTH SERVICES FOR THE POOR

Michael Harrington writing in the publication, *The Other America*, states very effectively the problems that are facing the underprivileged all over the country, and I quote: "The poor get sick more than anyone else in this society. That is because they live in slums, jammed together under unhygienic conditions; they have inadequate diets, and cannot get decent medical care. When they become sick, they are sick longer than any other group in this society. Because they are sick more often and longer than anyone else, they lose wages and work, and find it difficult to hold a steady job. And because of this, they cannot pay for good housing, for a nutritious diet, for doctors. At any given point in that circle, particularly when there is a major illness, their prospect is to move to an even lower level and to begin the cycle, round and round, toward even more suffering."

If most of America has enough medical care to stay alive until age 70, the man who can't afford to live beyond age 55 is poor. A man in this position is not only poor statistically, but he is also poor in a far more damaging way. He is a failure in his neighbors' eyes and in his own. Doctor Harry Taylor has just returned from Chicago, where he attended a national conference on health care for the poor. At that conference, the American Medical Association was urged to encourage local effiliates to lead in improving medical care in the slums.

The Greater Wilmington Development Council's Committee on Neighborhood Improvement Programs has as one of its ad hoc groups, Better Health Care for Neighborhood Slum Areas. This committee has been working for many months with interested groups in the City toward the establishment of a pilot program that would bring to the deprived area a family-type clinic. This committee is proceeding in a very orderly fashion, I have been informed, and is bringing into the planning process all areas of concern. They recently held a meeting with the New Castle County Medical Society Executive Committee.

The medical profession fully realizes that this is a different approach than the fee-for-service basis that we have so long operated under. One of the questions that the Greater Wilmington Development Council's committee is studying with a great deal of care is their concern whether conventional facilities such as the Wilmington Medical Center out-patient department could increase their services or whether health centers for comprehensive diagnosis and treatment in some of our deprived areas are needed.

Anti-poverty funds have financed up to the present time, forty-one slum health centers, but according to a quote from the Director of Office of Economic Opportunity at the conference attended by Doctor Taylor, Sargent Shriver stated that many city and rural slums in the country remained a "health wasteland."

The problem of the delivery of good health services to all of our citizens, regardless of their economic status, is the concern of the medical profession, and I urge all of the physicians in the State of Delaware, and especially in Greater New Castle County, to look upon this endeavor with an open mind. Physicians should be working with this group in its planning stage and I understand that they have been invited to do so through the good offices of the New Castle County Medical Society. Over the past five years we have experienced some tremendous changes in the delivery of health services to our patients, and I am just as sure as you are that in the next five to ten years, the last five years will seem calm, considering the storms that we will have to face as we press onward to deliver the type of health care that our citizens need.

Daniel J. Preston

# Delaware Academy of General Practice

## NEW CONTINUATION STUDY REQUIREMENTS

Each Academy member must complete 150 hours of accredited study every three years.

A minimum of *fifty hours* must come from the following:

1. Any postgraduate course originated and given directly by an accredited medical school will be considered for accreditation if submitted to the Chairman of the state chapter Committee on Education on an AAGP form No. 102 for forwarding to the regional adviser for the Commission on Education at least 30 days in advance of the program.

2. The AAGP Annual Scientific Assembly, the AAGP Invitational Scientific Congress and any course originated and directly presented by the American Academy of General Practice, its constituent state chapters or the state chapter's component chapters, will be considered for accreditation if submitted to the state chapter committee on education chairman on an AAGP form No. 102 for forwarding to the regional adviser for the Commission on Education at least thirty days in advance of the program.

3. The annual scientific assembly of each state chapter will be considered for accreditation if submitted to the state chapter committee on education chairman on an AAGP form No. 102 for forwarding to the regional adviser for the Commission on Education at least thirty days in advance of the meeting.

4. The publication of an original scientific paper in a state or national medical journal will receive ten accredited hours.

5. The presentation of an original scientific paper to a medical audience at the county level or above will receive ten accredited hours.

6. Teaching medical students or physicians. (Maximum credit twenty hours per year.)

The remaining *one hundred hours* may be acquired through study described below:

1. Other medical programs which, after review, promise to be of high educational, ethical and medical standards, provided they are submitted to the regional adviser for the Commission on Education on an AAGP form No. 102 at least thirty days in advance of the program, may be considered for hour-for-hour accreditation based upon the actual scientific content of the program.

2. Preparation and presentation of a scientific exhibit at the state level or above will receive ten accredited hours.

3. Attendance at hospital staff meetings and county medical society meetings on an hour-for-hour basis without proper approval required.

For other possible credit and additional requirements see Reprint 101, *Continuation Study Requirements.*

The type of credit and its verification may be obtained from your state chapter secretary.

An application for Active (Exempt) Classification should be requested from your state chapter:

To qualify you must:

1. Be age 60 and in practice more than 30 years; or

2. Attained age 70.

## TIGHTEST LITTLE ISLAND?

The per capita alcohol consumption in Puerto Rico is officially given as 18.3 gallons per year. But Dr. Fernando Cabrera of the Puerto Rico Medical Association says that the official figures are misleading. If very young and very old Puerto Ricans are excluded from the calculations, it would be seen that the typical adult drinks thirty to forty gallons of alcohol a year. Saludos, Amigos!

# Editorials

## IS THIS DRUG REALLY NECESSARY?

Penicillin cures gonorrhea (almost always; there may be a few gonococci stubborn about capitulating). Insulin reduces the hyperglycemia and acidosis of uncontrolled diabetes. Digitalis and diuretics frequently restore mechanical efficiency to the failing heart (but so may rest and salt restriction).

In a particular patient, is the medicine being ingested really necessary? How often can the physician be sure? Recently, Drs. David Singer and David Hurwitz reported their findings[1] during a long term study of all patients treated for diabetes with hypoglycemic agents, in the Boston City Hospital Clinic for the nine years that the oral agents have been available. When any patient was adjudged in good control on tolbutamide (*Orinase*) therapy, an identical placebo tablet was administered. A startling 31% of the patients (88 subjects) did just as well on the inert pill. Similar clinical trial with chlorpropamide (*Diabenese*) demonstrated 17% (51 patients) to do just as well on placebo as with medication. The authors point out that three tablets of *Orinase* per day cost a patient approximately $88 per year; one tablet of chlorpropamide, $80 per year. The placebo successes represented an unnecessary drug expense of $12,000 per year.

"Since every effort was made to determine that all persons admitted to the study required therapy in addition to diet alone, the causes for the frequency of successful placebo responses can only remain speculative. It has been suggested that a significant improvement in glucose tolerance can result from only three to five months of tolbutamide treatment, but this improvement rapidly regresses when the drug is discontinued.

"We suspect that the successful placebo response was based on other, less tangible factors. Mere inclusion in the study unavoidably involved more numerous clinic visits, more intensive care and closer relation with the attending physician. The psychologic stimulus of taking 'diabetes medication' daily may have served to remind a patient of the presence of an asymptomatic disorder otherwise easily ignored. The fact that a total of 139 carefully screened subjects could not be shown to need the medication they were thought to require is of some clinical concern," say Drs. Singer and Hurwitz.

This is certainly logical: telling a diabetic patient that he no longer needs to take daily medication is quite likely to cause him to relax his dietary restrictions. How is the physician to resolve this dilemma? Identical placebo tablets are seldom available although perhaps they ought to be; maybe if enough physicians requested them, ethical pharmaceutical houses would supply them.

Most of us have seen patients faithfully taking year after year daily medication long ago prescribed; medications possibly still necessary, possibly of pharmacologic value to the patient, but just as possibly not. Extended observation of the patient plus withdrawal of the medication may be the only way to tell.

This study does not state that the oral hypoglycemic agents are ineffective or unnecessary. There is ample evidence in the literature to the contrary. It does suggest that they, like many other medications, may be steadily prescribed for some individuals who can actually do without them. Caution in arriving at such a conclusion is warranted.

Especially with respect to a disease like diabetes in which significant asymptomatic deterioration of the patient's entire vascular system may occur before symptoms, continued observation that blood sugar is within normal range and repeated questions regarding adherence to the diabetic diet should be emphasized for any patient known at any time to have had demonstrable diabetes.

B.Z.P.

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[1] Singer, D. L. and Hurwitz, D; Long-term Experience with Sulfonylureas and Placebo, NEJM 277:450, 1967.

# The Physician and The Pharmacist

*A monthly feature of the Delaware Pharmaceutical Society*

## DRUG INFORMATION ABSTRACTS*

### Enterococcal Endocarditis

Ampicillin is more active *in vitro* against enterococci than penicillin G, and cures of enterococcal endocarditis with ampicillin alone have been reported (R.H. Parker and P.D. Hoeprich, Antimicrob. Agents Chemother, 1965, p. 618). Most *Medical Letter* consulants prefer the combination of either ampicillin or penicillin G with streptomycin.

### Sepsis

Ampicillin should be used as the sole therapy in patients with sepsis *only* when the organism has been found to be more sensitive to it *in vitro* than to other antibiotics. In the presence of renal insufficiency ampicillin is safer than kanamycin and other broad-spectrum agents used against gram-negative bacilli.

### Dosage

As with penicillin G, the dosages of ampicillin vary with kind and severity of the infection. In adults, oral dosage for more severe infections from 4 to 12 gm a day. In children, oral dosage for moderate infections varies from 25 to 200 mg/kg per day. In severe infections such as meningitis, dosages as high as 400 mg/kg per day, administered intravenously, may be needed.

### Adverse Effects

Patients who are allergic to any other penicillin should be assumed to be allergic to ampicillin, and parenteral administeration, especially, may cause severe reactions. (The Med. Letter, Vol. 9, No. 20 Issue 228, Oct. 6, 1967.)

### Corticosteroids

*Arthropathy*

Deterioration of human joints following repeated intra-articular injections of hydrocortisone has been reported. However, unequivocal evidence of this effect was lacking since it could be argued that joints so treated were already involved by a pathological process and that any deterioration following such injections might be a part of the natural course of the underlying disease process. Accordingly, experiments were conducted to determine the effects of weekly injections of 1 ml hydrocortisone (Hydrocortone — T.B.A.-MS&D.) on the living articular cartilage of the knee joints of adult rabbits. *All joints that received two or more injections showed gross and microscopic abnormalities*, the severity of which varied directly with the number of injections. The lesions were characterized by loss of normal luster of the surface of the cartilage thinning, fissuring, fibrillation of the cartilage, and the presence of cystic lesions containing calcium within the cartilate matrix. Injections of saline and injections of the suspending medium alone produced no lesions in the cartilate — Salter, R.B. et al. (Dept. Surg. Hosp. for sick Child., 555 Univ. Ave., Toronto, Ont. Canad.) M.A.J. 97:374 (Aug. 19,) 1967.

### Oral Contraceptives

Infertility secondary to anovulation is a growing problem among ex-users of "the pill." The authors describe four such cases in detail (they have seen others) and suggest initial treatment with prednisone, 5 mg. twice daily. If no response is obtained after three months, the use of Clomid (Clomiphene citrate-Merrell) or Pergonal (human menopausal gonadotropin — Cutter) may be considered. Many patients respond to such treatment, indicating that anovulation following oral contraceptives is a relatively mild endocrinopathy. Even so, women should be cautioned about the possibility of subsequent anovulation and infertility before oral contraceptives are prescribed. — Dodek, O.I. & Kotz, H.L. (8218) Wisc. Ave. Bethesda, Md.), Am. J. Obst. & Gynecol. 98: 1065 (Aug. 15) 1967.

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*This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

# In Brief

**Infectious Disease Program**

The Delaware Academy of Medicine and the Wilmington Medical Center present the *Fifth Annual Infectious Disease Symposium* on May 2-3, 1968. Speakers will be: Dr. Richard Hornick, Dr. James Murdock, Dr. Monroe Romansky, Dr. Theodore Woodward. A round table discussion on *The Prevention of Infection* will be moderated by Dr. Robert Wise on Thursday, May 2. Dr. Rebecca Lancefield will present the First Annual Armand T. Wilson Memorial oration on Friday, May 3. The detailed program will be given in the February issue of the Journal.

**Medical Seminars of the Medical Society**

These seminars will be held at the Milford Memorial Hospital from noon to 1 p.m. on the second and third Thursdays of each month.

Feb. 8, Alfred E. Bacon, Jr., M.D., *Treatment of Cardiac Arrhythmias.* An up-to-the-minute review of the cardiac arrhythmias and the recommended treatment of choice.

Feb. 15, Armand DeSanctis, M.D., *Review of Identifiable Viral Infections.* A discussion on the signs, symptoms and diagnostic criteria of the identifiable viral infections along with a discussion of diagnostic studies and potential anti-viral agents.

**Personal Glimpses**

A. Henry Clagett, Jr., M.D., ACP Governor for Delaware is in general charge of the regional meeting of Delaware Internists to be held February 24, 1968, at the Delaware Academy of Medicine . . .

**Council on Medical Education**

The Council on Medical Education of the American Medical Association presents the 64th Annual Congress on Medical Education at the Palmer House, Chicago, Feb. 11-12, 1968. For details, write: AMA, 535 North Dearborn St., Chicago, Ill. 60610.

**Radio Seminars**

The Pennsylvania Hospital announces Radio Seminars, Medical Continuation Education by FM radio as follows:

Jan. 30, Feb. 1, *Solid Tumor Chemo-therapy in the Smaller Hospital,* Sylvan M. Eisemann, M.D., Associate Prof. of Clinical Medicine, Univ. of Penn. Hospital.

Feb. 6, 8, *Treatment of Leukemia,* Manfred I. Goldwein, M.D., Asst. Prof. of Medicine, Univ. of Penn. School of Med.

Feb. 13, 15, *Management of Resistant Infections,* Donald L. Bornstein, M.D., Asst. Prof. of Research Medicine, Univ. of Penn. School of Med.

Feb. 20, 22, *Carcinoma of Breast-Postoperative,* Harvey J. Lerner, M.D., Associate Surgeon, Hospital of the Univ. of Penn.

Feb. 27, 29, *Addicts and Addiction,* James R. Harris, M.D., Co-ordinator of Psychiatric Affairs, Penn. Hospital.

**Speakers On "Ask The Doctor"**

Speakers for February, 1968, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Feb. 6, Robert L. Dewees, M.D., *Rheumatic Heart Disease;* Feb. 13, Robert L. Smith, *Sex Education in Schools;* Feb. 20, John E. Benzel, *Leukemia;* Feb. 27, Ronald C. Corbalis, *Breast Masses.*

## The Month In Washington

President Johnson signed into law the social security legislation which provides for a record high minimum 13 percent increase in cash benefits for 24 million Americans, starting in March. Beginning April 1, one dollar a month of the increase will be withheld from the checks of those participating in voluntary Plan B of medicare which covers part of physician fees and other medical services other than hospitalization. Beginning April 1, the premium will be increased from $6 to $8, with the government paying $4 and the participant, $4.

### Medicare

Payment of physician fees is authorized either to the patient on the basis of an itemized bill, either unpaid or receipted as paid, or to the physician under the assignment method.

Payment is authorized for full reasonable charges for radiological or services furnished by physicians to hospital inpatients.

Hospital outpatient diagnostic services are transferred from the hospital insurance program (Plan A) to the supplementary medical insurance program (Plan B). The change was designed to simplify the procedure for paying benefits for hospital outpatients.

The requirement of physician certification of the medical necessity for admission to general hospitals and for hospital outpatient services was eliminated.

Medicare beneficiaries are given a lifetime reserve of 60 additional days of hospital care after the 90 days covered in a spell of illness. The beneficiary must pay the first $20 per day for the additional hospitalization.

The Secretary of HEW was directed to study an dreport to Congress by January 1, 1969, the effects of covering drugs under medicare and of establishing quality and cost standards for drugs provided under social security health programs.

Services of podiatrists are authorized under medicare to the extent that a state's law permits, but routine foot care is not covered.

Outpatient services furnished by physicial therapists are authorized within certain limitations.

The Secretary of HEW was directed to study and make recommendations of adding services of chiropractic and optometrists to Plan B.

Payment is authorized under Plan B for diagnostic x-rays taken in a patient's home or a nursing home.

### Medicaid

States are limited in setting eligibility income levels for federal matching purposes. States are given until January 1, 1970, to buy-in medicare Plan B insurance for aged medicaid beneficiaries.

States are authorized to make direct payments to medicaid beneficiaries for physicians' and dentists' services if the beneficiary is not receiving cash assistance.

States are permitted to select either the five basic health services, or seven out of the 14 authorized, for medically indigent. The basic five must be provided for those receiving welfare cash benefits. They are: inpatient hospital services, outpatient hospital services, other laboratory and x-ray servicees, skilled nursing home services and physicians' services.

Under the program for Aid to Families with Dependent Children (AFDC), states now must offer birth control services to appropriate beneficiaries with acceptance on a voluntary basis. Authorizations for federal financial aid for maternal and child health programs are increased. Services of optometrists are added to child health programs.

**Drugs**

Dr. James L. Goddard, commissioner of the Food and Drug Administration, estimated that about 300 drugs, marketed under 1,600 brand names, will be forced off the market because of ineffectiveness for treatment of medical conditions.

The federal government has licensed a live, attenuated mumps virus vaccine especially recommended for adolescent and male adults who can become sterile from the relatively innocuous childhood disease.

## CLINICAL MEETINGS AND NOTICES

**Applications Accepted**

The American Heart Association is now accepting applications for Fellowships in Medical Education for the 1968-69 academic year. U. S. citizens who hold either an M.D., Ph.D., Sc.D., or its equivalent, are eligible to apply.

**American College of Surgeons**

The 14th annual combined Sectional Meeting for doctors and nurses will be held in Williamsburg, Va., March 11-13, 1968. Nurses and Fellows of the college may register at no charge. Other doctors will be assessed a registration fee of $15.00. For further details, write: Mr. T. E. McGinnis, American College of Surgeons, 55 East Erie Street, Chicago, Illinois, 60611.

**Doctor-Hospital Workshop**

Eight health authorities have been named to a panel of moderators for *The Doctor and His Hospital* workshop to be held March 7-8, 1968, at the Pick-Congress Hotel, Chicago. It is expected that over 1,000 physicians will attend plus administrators, trustees, and others concerned with the increasing problems confronting hospitals and the patients they serve.

**American College of Physicians**

The American College of Physicians will present an intensive interviewing course on *Psychiatry and the Internist*, Feb. 5-9, 1968, at the Los Angeles County General Hospital, Los Angeles.

The ACP will present a course on Hypertensive Cardiovascular Diseases: *Mechanisms and Treatment*, Feb. 28-29 and March 1-2, 1968, at the Clinical Research Institute of Montreal.

Fees are: Members, $60; nonmembers, $100. For information, write: Edward C. Rosenow, Jr., M.D., Exec. Dir. ACP, 4200 Pine St., Phila., Pa., 19104.

**Postgraduate Institute**

The 32nd annual Postgraduate Institute of the Philadelphia County Medical Society will be held Feb. 20-23, 1968 at the Bellevue-Stratford Hotel. This meeting is accepted for credit by the American Academy of General Practice. For information, write: Robert L. Mayock, M.D., 2100 Spring Garden Street, Phila., Pa., 19130.

**P. G. Course**

The American Academy of Allergy will present a two-day Postgraduate Course at the Statler Hilton Hotel in Boston, Feb. 3-4, 1968, on *Viruses & Virus Diseases, Antigens and Antibodies, Inflammation and Autoimmunity*.

The 24th Annual Meeting will follow the Postgraduate Course on Feb. 5-7. For information, write: American Academy of Allergy, Exec. Office, 756 North Milwaukee St., Milwaukee, Wis., 53202.

**American College of Chest Physicians**

The ACCP announces its Postgraduate Program:

Feb. 12-16, 1968, *Clinical Application of Cardiopulmonary Physiology*, Ambassador Hotel, Los Angeles, Cal.

Mar. 4-8, 1968, *Diagnosis and Treatment of Cardiovascular and Pulmonary Diseases*, Hotel Fontainebleau, Miami Beach, Florida.

April 29-May 1, 1968, *Cine Angiographic Techniques in Cardiovascular Disease, Cleveland Clinic, Cleveland, Ohio.*

**Home Care Training**

The Home Care and Extended Services Department announces the 1968 Winter-Spring Calendar for Training Programs on Coordinated Home Care; *Jan. 31-Feb. 2,* Thirteenth Institute on Coordinated Home Care; *Mar. 4-8,* Training Program; *May 8-10,* Seminar — Administrative Functions in Home Health Agencies; *June 10-28,* Training Program. For information, write, Director, Training Programs in Home Care, Montefiore Hospital and Medical Center, 111 East 210 St., Bronx, New York 10467.

# Auxiliary Affairs

## PROFILE OF THE PRESIDENT OF THE NEW CASTLE COUTY AUXILIARY

Mrs. Haynes B. Cates

What can one write about oneself? I thought I had written my last autobiography when I had finished grade school, where writing the story of my life was an annual assignment. I can remember I always liked to begin by saying that I was born in New York City, because that made me sound different from my classmates in Salem, New Jersey, where I attended grade school and high school. Of course, in those days, I never added that my family moved to Salem when I was only a few weeks old.

As an English major at the University of Chattanooga, I joined Pi Beta Phi sorority and discovered that dramatics was my favorite extra-curricular activity. When I finished college I went back to Salem to teach English in the high school, and to start work on a Master's degree in psychology at the University of Pennsylvania. Just then along came Haynes, and I quickly decided I'd try for an *MRS.* instead of an *MA*. That was the smartest decision I ever made.

We were married as soon as Haynes finished medical school. World War II was in progress; so, after a year's internship, Haynes was commissioned as a lieutenant in the Army; and we started travelling from one post to another, until orders came for Haynes to go to Europe. Fortunately, he returned from D-Day, the Battle of the Bulge, and many other terrifying experiences unharmed; and we went to Louisville for a residency in orthopaedics.

Our Carole was born in Louisville in 1949, just before we moved to Wilmington. Two years later, Susan; Timmy, (officially Haynes, Jr.,) was born in 1954; and Ricky, in 1957.

Carole finished Tower Hill last June. While there, she was captain of the cheerleaders, secretary of her class, active in dramatics, and interested in everything in and about education, and school. Presently, she is attending Beaver College, planning to major in Elementary Education.

Susan, a junior at Tower Hill, is our athlete. She has played varsity hockey, basketball, and lacrosse ever since she was a freshman. She is a cheerleader and is doing some work in dramatics, too. Last summer, she took the training program at the Curative Workshop and Alfred I. Institute, because she is interested in physical therapy.

Timmy and Ricky keep the house lively. They enjoy sports of all kinds, but squash is their current favorite. They love the Beatles, hate haircuts, fight with each other, but are lovable little boys just the same. Both go to Alexis I. Dupont Middle School, where Timmy is in eighth grade, and Ricky is in fifth.

Sometimes I feel as if I have lost my identity. I'm Dr. Cates' wife, Carole's mother, Susan's mother, Timmy's mother, or Ricky's mother, depending on where I am or whom I meet. I must admit, though, that they are all titles that I am very proud of. I feel most fortunate to have such a wonderful family.

Being President of the New Castle County Medical Society Auxiliary has been a real joy. The cooperation I have had seems almost unbelievable. The year is one I shall always remember with great pleasure because of the thoughtfulness and friendship of those with whom I have worked.

Delaware Medical Journal

FEBRUARY, 1968

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NUMBER 2

# THE VALUE OF PULMONARY FUNCTION TESTS IN THE DIAGNOSIS OF MULTIPLE PULMONARY EMBOLI*

JAMES M. HOFFORD, M.D.

Physicians are developing an increased index of suspicion of the diagnosis of multiple pulmonary emboli. The diagnosis is difficult to prove because most of these patients are seriously ill and there may be other confusing abnormalities such as heart failure. Pulmonary angiography and pulmonary scans are helpful but not always easy to obtain in critical clinical situations. The routine chest x-ray frequently does not show the expected finding of wedge-like infarcts.

The case herein reported presents a problem of heart failure associated with severe persistent anoxia and clubbing of the fingers, in which the presence of arterial anoxia and respiratory alkalosis after clearing of pulmonary edema was of aid in suggesting the diagnosis of multiple pulmonary emboli.

## Case Report

The patient, a 29 year old man, had been well until three weeks before admission to St. Francis Hospital on March 10, 1967, with the chief complaints of shortness of breath, cough, fever, chills, and hemoptysis.

Physical findings on admission were: blood pressure, 100/80 mm Hg; pulse, 120/minute, neck veins slightly distended; generalized inspiratory rales; gallop rhythm with a systolic murmur at the apex; liver palpable five fingerbreadths below the right costal margin.

Chest x-ray revealed marked cardic enlargement with extensive hilar and pulmonary congestive changes and an area of localized pneumonia in the region of the right middle lobe.

Past medical history was significant only in that the patient had never been hospitalized prior to the above described episodes.

A mechanic at a service station, he admitted to drinking one half pint of whiskey or less per week. However, his quantity estimate seemed a little indefinite and it was suspected by the observers in charge that he imbibed alcohol more heavily. He smoked one pack of cigarettes every two days. His father was living, 78 years old, and had hypertension. His mother died at age 74 of unknown cause. He had nine siblings; one sister had heart trouble.

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Pertinent laboratory studies included a positive VDRL and several negative LE cell preparations. Sputum culture demonstrated normal flora with a few pneumococci. Serial EKG'S revealed left ventricular hypertrophy with ischemic changes. Lumbar puncture was normal.

The patient was treated with penicillin because of his positive serology. He was given supportive therapy and oxygen and he was digitalized. He remained in the hospital for 19 days and improved although it was stated that the lung findings did not clear up.

He was followed as an outpatient until April 15, 1967, when he noticed an increase in his symptoms and was readmitted to St. Francis Hospital with similar complaints to those of his first admission. He again was treated symptomatically and discharged improved after 23 days in the hospital.

### Third Admission

The third admission to St. Francis Hospital was on June 7, 1967. At this time he was found to have marked cardiac enlargement with evidence of congestive failure which was difficult to control. There was a gallop rhythm and a short apical ejection type systolic murmur. The liver was markedly enlarged, smooth and non-tender. He continued to have dyspnea and hemoptysis. The chest x-ray showed abnormality of the right lung base and the right lower lobe, essentially unchanged from the findings of April, 1967.

He was transferred for further study to the Delaware Division, Wilmington Medical Center, on June 14, 1967. Additional history obtained included two pillow orthopnea, frequent nausea and vomiting, and migratory polyarthralgias for the past month. The ankle edema had been managed with diuretics and he admitted to a sixty pound weight loss since the onset of his illness in March of 1967.

Pertinent physical findings on admission were blood pressure 100/80 mm Hg in the left arm; pulse 120/min. and regular; respiratory rate, 40/min. He was afebrile.

A well-developed man, he showed evidence of having recently lost a considerable amount of weight. His eyes were prominent. The sclerae were muddy; the conjunctivae were pale; the pupils and fundi were otherwise normal. There were no abnormalities of the ears or nose. The teeth were in fair condition. The throat was slightly reddened. (There were no cervical, axillary, inguinal, breast or thyroid nodules.) The chest showed shallow rapid respiratory movements. Auscultation of the chest revealed normal breath sounds except for scattered inspiratory coarse moist rales heard at both lung bases.

The left heart border was percussed midway between the midclavicular line and the anterior axillary line. The heart sounds were of good quality with a gallop rhythm. There was a short high pitched apical systolic murmur of the ejection type at the apex.

Abdominal examination demonstrated right upper quadrant tenderness. The liver was enlarged so that the edge could be palpated at the level of the umbilicus. The tip of the spleen was felt just below the left costal margin.

Pedal pulses were felt. The genitalia were normal. The fingers demonstrated obvious clubbing and cyanosis; the clubbing was noted to increase in degree during hospitalization. Neurologic examination showed a fine regular tremor of the hands.

Laboratory studies showed hemoglobin 10.9 gm/100 cc and hematocrit 39% with a WBC of 14,300 cu mm and a normal differential. Sedimentation rate was 28 mm/hr. VDRL was reactive (1:4). Kolmer-Wasserman was reactive. The fluorescent Treponema antibody was reported as reactive. Urinalysis showed specific gravity 1.015 with 3+ albumin, negative sugar and 5-6 WBC's/hpf. C-reactive protein was 2+ and the antistreptolysin-0 titer was 50 Todd units. The RA latex fixation test was weakly positive.

BUN was 36 mg%; feasting blood sugar, 131 mg%; plasma $CO_2$, 21 mEq/liter; chloride, 98 mEq/liter; sodium, 134 mEq/liter and potassium, 2.7 mEq/liter. The potassium on subsequent dates was 4.3 mEq/liter and re-

TABLE I

| Date | Clinical Status | % $O_2$ | $pO_2$ Rest mm. Hg. | $pO_2$ Breathing 100% $O_2$ | $pCO_2$ mm. Hg. | pH | $O_2$ Consumption cc/min/$M^2$ STPD | Minute Ventilation L/min/$M^2$ BTPS |
|---|---|---|---|---|---|---|---|---|
| Normal Values | | 96 | 95 | >600 | 40 | 7.40 | 110-150 | 3.5 |
| 6-26-67 | Clinical heart failure with rales in lungs | 78 | 42 | 420 | 23 | 7.38 | 196 | 10.9 |
| 6-29-67 | Marked improvement in heart failure, lungs clear | 89 | 50 | — | 34 | 7.43 | — | — |

mained within normal limits. Total bilirubin was 1.2 mg%; direct bilirubin 0.4 mg%. Prothrombin time was 40%. Total protein was 6.1 gm% with albumin 3.0 and globulin 3.1. The electrophoretic pattern of the serum protein showed total protein, 6.25gm (normal, 6.5gm); albumin, 2.53gm (normal 3.5gm); alpha-1 globulin, 0.5gm (normal .44gm); alpha-2 globulin, 0.97 gm (normal .76gm); beta globulin, 0.98gm% (normal .93gm%) and gamma globulin, 1.22gm% (normal). PBI was 34.5 mcgm/100ml with normal 3.5 to 8 mcg.

Other laboratory data included calcium, 7.7 mgm%; phosphorus 3.3 mgm%; cholesterol (checked) 55 mg. The SGOT was 157. Serum protein immune electrophoresis showed IGG, 1740 mgs% (normal = 800 to 1700 mgm%); IGA, 380 mgs% (normal = 10 to 570 mgm%); IGM, 96 mgs% (normal = 50—90 mgm%). Urinary 5-hydroxyindoleacetic acid was normal. The serum calcium was repeated and found to be 8.4 mgm% and the phosphorus 4.4 mgm%. Another cholesterol was 68 mg%. PBI was repeated on July 11, 1967, and found to be 8.5 mcg. Salicylate level was 15.1 mg%. Two sputum cultures showed normal flora. One urine culture revealed the presence of Pseudomonas. Two blood cultures showed no growth after 17 days. Skin and muscle biopsies showed no diagnostic abnormalities.

Chest x-ray with fluoroscopy of the chest on June 15, 1967, showed generalized cardiac enlargement and when repeated on July 5 was reported as showing, in addition to a mild pulmonary congestion, that the right costophrenic angle was obscured by an infiltrate that had not been seen before and was interpreted as a pneumonitis or an infarct.

The electrocardiogram was interpreted as showing left ventricular hypertrophy and changes compatible with old posterior infarction.

A T-3 study was performed and found to be 40%, in the upper limits of normal.

Pulmonary function studies were done and are reported separately under discussion.

### Hospital Course

On admission, the patient was thought to have heart disease of unknown etiology. A myocardiopathy was considered; thyrotoxic heart disease was considered; congenital heart lesion could not be ruled out. He was treated with digoxin .25 mgs b.i.d. and Hydrodiuril 50 mgs daily. His weight on admission was 155 lbs and within three days dropped to 151 lbs. He continued to have blood streaked sputum and shortness of breath, tachycardia and gallop rhythm. His digoxin was increased to .25 mgs t.i.d. He was given ethocrynic (Edecrin) acid 50 mgs daily. When he complained of muscle aching and stiffness of the joints, he was begun on aspirin 600 mgs every four hours and within 24 hours had relief of his joint symptoms. Because he seemed exophthalmic and the PBI was found to be elevated at 34.5 mEq% on admission, he was given Tapazole 10 mgs every four hours and guanethidine, on the assumption that perhaps he had thyrotoxic heart disease. During his nearly two months hospitalization, he improved slightly but remained weak, lethargic and tended to perspire freely. Later in his hospital course, he developed nausea. He was found dead in bed on July 19, 1967.

*Post mortem examination* of the heart showed marked cardiac hypertrophy, chiefly ventricular; the heart weighed 600 gm. All valves were normal. Microscopic examination of the myocardium revealed bizarre myocardial nuclei with increase in fat deposition and a patchy microscopic fibrosis. Examination of the lungs revealed large bilateral recent pulmonary infarcts. There was right pleural thickening and fibrosis with subjacent microscopic pulmonary infarction. There was intra-alveolar deposition of histiocytes compatible with the changes of prolonged congestive failure. Grossly the liver was nutmeg in appearance with the characteristic appearance of chronic congestive failure; microscopically, it demonstrated fatty and fibrotic infiltration typical of congestive heart failure. The thyroid was within normal size and weight and was normal microscopically.

The final diagnoses were:

1. Idiopathic myocardiopathy and pulmonary emboli,
2. Syphilis, treated.

### Discussion

The patient presented with undiagnosed disease. The presence of marked cardic enlargement in a young man without obvious evidence of valvular disease or hypertension suggested the presence of a myocardiopathy. Thyrotoxic heart disease had to be considered because of the markedly elevated PBI and clinical status. A congenital lesion could not be ruled out with certainty.

Pulmonary function studies were done on this patient in an effort to clarify the diagnosis in view of the patient's marked dyspnea and clubbed fingers.

### Causes for Anoxia

There are four causes that must be considered when anoxia is present. The first is *hypoventilation;* this is usually associated with increased arterial partial pressure of carbon dioxide. The second is a *ventilation-perfusion imbalance* as seen in pulmonary emphysema; this is also associated with increased levels of carbon dioxide. The third is *shunting of venous to arterial blood;* this can be ruled out if one can demonstrate that the partial pressure of oxygen in arterial blood will rise to above 600 mm Hg on breathing 100% oxygen. The fourth is a *diffusion abnormality.*

The values shown in Table I rule out both hypoventilation and ventilation-perfusion imbalance since both of these conditions would be associated with increased levels of carbon dioxide and the observed carbon dioxide levels were below normal.

The last two possibilities, veno-arterial shunting or a diffusion abnormality, had therefore to be considered seriously in this case.

The response to oxygen breathing suggested veno-arterial shunting of a mild degree because of the fair rise of arterial oxygen partial pressure to 420 mm Hg after oxygen inhalation. This ruled against serious veno-arterial shunting as might be found in some cases of congenital heart disease but did not rule out mild shunting.

Thyrotoxic heart disease was, however, made an unlikely possibility in view of the high normal resting oxygen consumption. Table I demonstrates the persistence, after the patient's congestive heart failure had markedly cleared, of severe arterial anoxia and respiratory alkalosis. This persistence of anoxia suggested that some other condition than pure heart disease was present; multiple pulmonary emboli had therefore to be strongly considered.

This case presented demonstrates that pulmonary function tests can be emphatically suggestive but not diagnostic of pulmonary emboli. The blood gas values must be interpreted in light of the clinical findings.

Arterial blood, oxygen and carbon dioxide concentrations have been described as close to normal in the congested lung.[1,2] The anatomic changes in the congested lung are described as: (a) engorged blood vessels, (b) an excessive quantity of water in the lung as manifested by interstitial and alveolar edema and (c) thickening of the intimal and medial layers of the smaller pulmonary blood vessels with perivascular fibrosis. The oxygen saturation may be slightly reduced; e.g., 93%, and the carbon dioxide content normal or slightly reduced but unless there is bronchial obstruction or associated lung disease, the blood gases are maintained at near normal levels. The anoxia present in acute pulmonary edema will disappear rapidly when the edema clears.[3] Anoxia and severe respiratory acidosis have been described in acute pulmonary edema due to obstruction by foam.[4]

There are several changes that are thought to occur in the lung in pulmonary embolism: release of the chemical substances serotonin, histamine and bradykinin, initiation of vagal reflexes that can cause bronchoconstriction, systemic arterial hypotension, coronary vasoconstriction and even constriction of non-embolized vessels in the pulmonary circulation.[5]

The diffusing capacity may be reduced in pulmonary embolism due to a decrease in the total diffusing area.[6] This is not an alveolar-capillary block in the true sense of the word. The predominant physiological abnormality in multiple pulmonary embolism is related to uniform ventilation in the lung associated with non-uniform blood flow. The blood flow through the functioning alveoli is increased since all the mixed venous blood of the pulmonary artery passes through them. The ventilation in these alveoli is insufficient to arterialize completely this load of venous blood and the result is anoxemia.[7] Hyperventilation in these cases is usually associated with normal or subnormal arterial levels of carbon dioxide.

In patients who have pulmonary infarction of any size, there is arterial desaturation. Robin and his colleagues[8] found a decreased diffusing capacity contributing to the anoxemia in some cases; in others, venoarterial shunting was found to be responsible for the anoxemia. It has been said[9] that when pulmonary embolization is extensive, "the pulmonary circulation is converted to a fixed resistance system, alveolar capillary contact time is reduced, and the area available for gas exchange in the lung is markedly diminished." This is referred to as a "diffusion insufficiency (reduction in contact time)," dependent on pulmonary blood flow.

The important point to be made is that anoxemia with respiratory alkalosis of a significant degree suggests the possibility of pulmonary infarction and this finding may be useful in differential diagnosis.

The values of June 26, 1967, in Table I were recorded while the patient was in heart failure with rales scattered throughout both lungs and marked leg edema. The values of June 29, 1967, depict the blood gases after the lungs had cleared and most of the leg edema had subsided. The persistence of the severe anoxia and respiratory alkalosis shown by the low levels of carbon dioxide suggested disease other than pure heart failure. The alkalosis was attributed to hyperventilation. In this instance the additional alternative was that of multiple pulmonary embolization.

In the case presented, we were left with evidence of mild veno-arterial shunting and a probable abnormality of diffusion. This seemed to be consistent both with uniform ventilation associated with non-uniform blood flow and a diffusion insufficiency.

The association of the severe anoxia and progressive clubbing of the fingers that was observed by the house staff and seemed to progress during the patient's hospitalization is an interesting correlation. Severe clubbing

Continued on Page 36

# THE MULTIPLE SCLEROSIS DIET*

• **Hypersensitivity appears to be a prominent factor in the eticlogy of multiple sclerosis. Until a specific preventive or therapeutic agent is discovered, we must concentrate on treating the patient and not the disease. The C.I.O. (common irritants omitted) diet and the non-use of tobacco and alcohol are an important phase of the rehabilitation program.**

George J. Boines, M.D.

For many years multiple sclerosis has been considered as an auto-immune reaction disease[1,2] based on an irritation to the myelin by a now isolated allergic protein factor or antigen.[3] Several authorities have suggested various special diets because of the harmful effects of animal fats deficient in unsaturated fatty acids and also because a low-fat diet favorably influences the course of the disease.[4]

Other authors have stated that multiple sclerosis rates are high in people who consume more than average amounts of dairy products and meats.[5] Still others have emphasized that multiple sclerosis patients must avoid foods to which they are found to be allergic or sensitive.[6]

I have noticed that a high percentage of the group of 300 patients I have studied have some type of allergy. While this may be coincidental and of little significance, I am convinced that the diet I am prescribing has a beneficial effect from a clinical point of view. This diet is not original with me, but I am in agreement with those workers who believe that allergy may be an aggravating factor and therefore I omit all items which are high on the allergy scale. In patients who are overweight, calorie intake is reduced accordingly. This diet is high in proteins and vitamins and provides well-balanced, nutritious and palatable items.

Until the etiology of multiple sclerosis is definitely established, this diet should be strictly adhered to. Smoking and the intake of alcoholic beverages are omitted completely because of their toxic effect on the central nervous system and should be avoided regardless of any allergy known to them. The inhalation of tobacco fumes reduces the pulmonary vital capacity and thus interferes with maximum oxygenation of the body, and this in turn reduces the amount of $0_2$ transported to the damaged cells of the central nervous system.

In order to make it easier for the patient to select a variety of food items and make it simpler in arranging a well-balanced diet, the following list is outlined:

### Soups and Meats

A small amount of salt may be added during cooking, but no salt or substitute should be added at the table, unless it is sodium free salt substitute.

Beef barley soup, broth with rice or with chicken; chicken sandwich, lean steak sandwich; turkey, chicken, beef, lamb, veal, broiled tenderloin, liver, meat roll, without any egg yolks, all-beef frankfurters; special gravy (dissolve a bouillon cube and thicken with cornstarch).

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*This diet was arranged with the cooperation of the Dietetic Department of the Wilmington General Division of the Wilmington Medical Center.

## SAMPLE OF DIET LIST USED IN MULTIPLE SCLEROSIS

**Beverage:**

*Foods Included* — Non-dairy milk (Coffee Rich) one tsp. for coffee with meals, plus 3 oz for cereal. Fruit juices with meals, carbonated beverages except those listed under "Foods Excluded."

Cereal beverages, decaffeinated coffee, tea, ginger ale, 7 Up, Frostie Root Beer.

*Foods Excluded* — Cola beverages, cocoa, milk and milk products, and coffee.

**Bread Substitutes:**

*Foods Included* — Quick bread, yeast bread, rolls, soda crackers, all made without milk and eggs, Jewish rye, Italian rolls.

*Foods Excluded* — Any containing nuts or milk.

**Cereal:**

*Foods Included* — Any except chocolate flavored cereal. Cooked cereal without milk. May use honey.

*Foods Excluded* — Chocolate-flavored cereal.

**Dessert:**

*Foods Included* — Cakes, cookies, gelatin desserts, ices, all made without eggs or milk. Pies made with allowable foods.

*Foods Excluded* — All desserts containing chocolate, cocoa, eggs, nuts, milk.

**Fat:**

*Foods Included* — Special French dressing, fortified margarine, salad oil shortening, any vegetable oils.

*Foods Excluded* — Salad dressings with eggs or milk.

**Fruit:**

*Foods Included* — Canned, cooked, fresh or frozen fruits except those listed under "Foods Excluded."

*Foods Excluded* — Strawberries, dry fruits, any fruits of known allergy, prune juice.

**Meat, eggs or cheese:**

*Foods Included* — Any lean meat except fresh pork. Fowl cooked as desired. All-beef hot dogs. Broiled liver.

*Foods Excluded* — Fresh pork, fish, shellfish, cheese, eggs, avoid all fried foods.

**Potato or substitute:**

*Foods Included* — Potato, hominy, macaroni, spaghetti.

*Foods Excluded* — Noodles containing eggs.

**Soup:**

*Foods Included* — Any from foods allowed.

*Foods Excluded* — Any with milk or eggs.

**Sweets:**

*Foods Included* — Candy except those listed under "Foods Excluded," honey, jam, jelly, molasses, sugar, syrups.

*Foods Excluded* — Candy containing chocolate, eggs, milk, nuts.

**Vegetables and Salads:**

*Foods Included* — Any except those listed under "Foods Excluded." Lemon juice. Sauerkraut (watch the salt).

*Foods Excluded* — Fresh corn, cucumbers, onions, radishes, tomatoes.

**Miscellaneous:**

*Foods Included* — Gravy, herbs, popcorn, minimum salt, spices, vinegar, white sauce —made with oleo, bouillon and flour.

*Foods Excluded* — Chocolate, cocoa, nuts, olives, peanut butter, pickles, relishes, odd and exotic flavorings. Spices, pepper.

**Additional:**

1. Take drugs ordered by physician only.
2. Keep bowels open daily. Use mild laxatives or tap water enema.
3. Smoking and alcoholic beverages are not permitted.
4. Avoid the use of novocaine injections for local anesthetic; use zylocaine or procaine.
5. Spinal anesthesia is never permitted.

*Editorial comments on this article may be found elsewhere in this issue.*

### Vegetables, Salads, Desserts and Breads

All vegetables should be prepared without milk or butter; oleo may be used. Salad oil and vinegar may be used on salads.

Potatoes, spinach, rice, waxed beans, beets, green-peas, carrots, asparagus, string-beans, sauerkraut, hominy, spaghetti (no egg noodles), macaroni; fresh fruit or stewed-fruit salad, lettuce, celery, jello, fruit-ice, Frostie float with fruit-ice; soda crackers, or graham; special Italian roll, Jewish rye.

### Fruits, Cereals, Jellies and Beverages

Pear or apricot nectar, juices of Concord grapes, frozen grapefruit, pineapple, orange, blended citrous; red or greengage plum in syrup, sliced peaches or pineapple, applesauce, Bartlett pears, fresh grapefruit sections or orange slices, bananas, Royal-Anne cherries, Kadota figs, canned apricots; oatmeal, Wheatina, farina, dry cereal; apple-butter, jelly, jam, sugar, cranberry jelly, honey, molasses; decaffeinated coffee, tea, root beer, ginger ale, 7 Up; 3½ oz. of non-dairy creamer, daily.

This diet represents only one phase in the management of the multiple sclerosis patient.[7,8,9] My entire rehabilitation program is initiated with complete physical,[10] ophthalmological[11] and urological[12] examinations, and a detailed muscle evaluation. These are followed by the injections of methyl prednisolone, intrathecally;[13] intensive physical and occupational therapy for muscle coordination and functional improvement; speech therapy; vitamins (ascorbic acid, nicotinamide, calcium); muscle relaxants, and tranylcypromine where indicated for the relief of fatigue and depression. Any type of infection is treated energetically with appropriate antibiotics because of the poor resistance of the multiple sclerosis patients and the tendency for exacerbations to occur.

The remissions which follow my management are very encouraging and many patients are able to return to their previous occupations and, with or without any mechanical aids or any assistance, become independent.[14,15]

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## THE VALUE OF PULMONARY FUNCTION TESTS

Continued from Page 33

of the fingers is not a usual finding in heart failure or multiple pulmonary emboli.

### Summary

A case of myocardiopathy associated with heart failure, multiple pulmonary emboli and clubbing of the fingers is presented.

Arterial blood anoxia and respiratory alkalosis persisting after signs of pulmonary edema have cleared are shown to suggest the presence of multiple pulmonary emboli.

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# REMISSION IN DIABETES MELLITUS

## A Case Presentation

**• Within the past year one of the patients followed in the Metabolic Clinic of the Wilmington Medical Center displayed an unusual course of her disease. The author presents this case because of its interest.**

Robert B. Brereton, M.D.

Remission of diabetes mellitus cannot be called rare, but in the population of patients seen at the Metabolic Clinic of the Wilmington Medical Center, such a case is uncommon. Many of the case reports in the literature have been of juveniles.[1] The present case is that of an obese woman approaching middle age who presents certain unique aspects in her rather short course from the time of marked metabolic abnormalities to the period of remission.

### Case Report

This 36-year-old woman was sent to the Emergency Room of the Delaware Division on November 6, 1966, because of nausea, vomiting, weakness, polyuria, and polydipsia. Two weeks prior to admission she had experienced vaginal pruritus. Later, gastrointestinal disturbances caused her to see her family physician. She was treated with an antibiotic and an antiemetic with a poor response. When she became worse, her physician referred her to the emergency room of this hospital. Her past medical history revealed only obstetrical admissions (Gravida IV, Para I, Abortus III). The child she delivered was not of excessive size. She denied any family history of diabetes, but told of "heart attacks" occurring during early middle age in two members of the family.

Remarkable physical findings revealed a moderately obese Negro woman who was lethargic but alert and cooperative enough to answer questions. She was also nauseated but in no marked distress. Her vital signs and temperature were normal. Her skin and mucous membranes were dry. The ocular globes were soft. No conjunctival icterus was noted and fundoscopic examination was normal. The neck was supple and did not reveal any abnormal masses. The chest was clear to auscultation and percussion, and the breasts were negative for masses or tenderness. Cardiac rhythm was regular with a rate of 88 and no murmurs were heard. Examination of the abdomen, extremities, lymph node bearing areas, and neurologic system were all normal. Vaginal exam revealed a white, mucoid discharge, and a slight cystocoele.

Laboratory data on admission revealed a blood sugar of 484 mg/100 cc with acetone present as a trace at 1:8 dilution of serum. The $CO_2$ was 7, sodium 136, potassium 4.3, and chloride 89 mEq/l and the BUN was 29 mg/100 cc. Hemoglobin was 16.7 gm and WBC 15,200 with 85% polys, 10% lymphs, and 5% monocytes. Admission urinalysis revealed 4+ sugar and a large amount of acetone. Later laboratory findings included PBI of 6 micrograms, negative VDRL, and a vaginal culture of spreading Proteus and a beta-hemolytic streptococcus that was felt to be neither Group A or D. Urine cultures were negative, and the chest film was normal.

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TABLE I

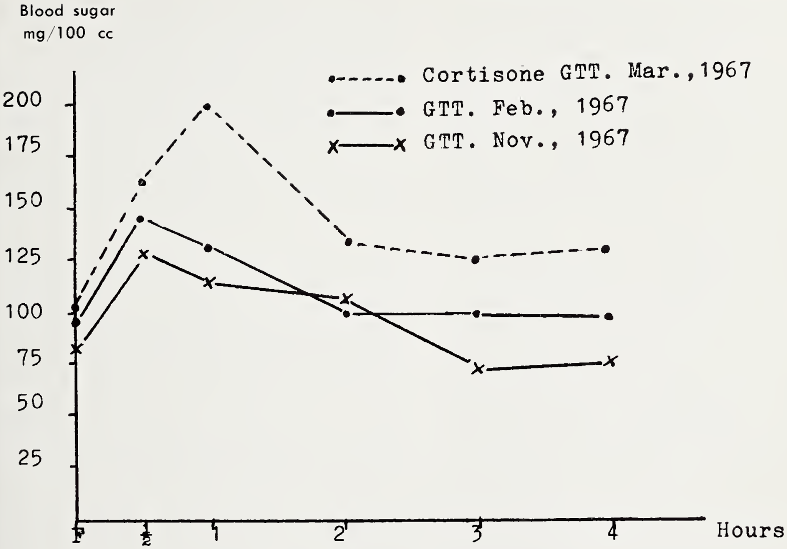
| 2/13/67<br>G.T.T | 3/15/67<br>C-G.T.T | 11/30/67<br>G.T.T. | |
|---|---|---|---|
| 98mg % | 103mg % | 85mg % | — Fasting |
| 146 | 169 | 126 | — ½ hour |
| 127 | 198 | 115 | — 1 hour |
| 99 | 130 | 105 | — 2 hours |
| 99 | 125 | 72 | — 3 hours |
| 97 | 127 | 75 | — 4 hours |

The cortisone-G.T.T. was performed after the patient received 65 mg of cortisone acetate orally 8 hours and 2 hours before the test.

**Hospital Course**

The patient was initially treated with I.V. fluids and regular insulin (a total of 120 units in the first 12 hours). At the end of twelve hours, her blood sugar was 220 mg/100 cc with serum acetone trace at 1:6 dilution. A few hours later the $CO_2$ was 16 mEq/l. By this time 5% dextrose had been added to the I.V.'s, and it was decided to treat the acetonemia with insulin while continuing to give I.V. dextrose to prevent hypoglycemia. She continued to be nauseated with occasional vomiting through most of the first 48 hours after admission, and it was not until the evening of November 8, that her urine acetone decreased to a "small amount." Intravenous fluids and regular insulin coverage continued until November 10 because of her inability to eat due to nausea. At this time NPH insulin was started and she improved gradually. Her daily insulin requirement soon rose to 50 units of NPH. On November 19, 1966, she was discharged on a 1,200 calorie diabetic diet, 55 units of NPH insulin per day, and a long-acting DBI capsule twice a day. Her weight at this time was 178 lbs. When she was seen one week later in Metabolic Clinic, her two hour post-prandial blood sugar was 86 mg%/100 cc. The DBI dose was halved and at the following visit two weeks later, her post-prandial blood sugar was 114 mg%/100 cc. Her weight at this time was down to 172 lbs. She continued to show this same pattern and was finally taken off all hypoglycemic agents on February 3, 1967. At this time her weight was 177 lbs. This was less than three months after her admission in diabetic ketoacidosis. An intercurrent urinary tract infection with *E. coli* had also failed to push her back into a hypoglycemic state.

On February 13, 1967, a four-hour standard glucose tolerance test was performed which showed a blood sugar of 98 fasting, 146 at one-half hour, 127 at one hour, 99 at two hours, 99 at three hours, and 97 mg/100 cc at four hours (Table 1). In view of the absence of a diabetic curve, a cortisone glucose tolerance test was given one month later. Sixty-five milligrams of cortisone acetate were taken orally eight hours and two hours before the test after the method of Fajans and Conn.[2] This was borderline revealing a fasting blood sugar of 103, 169 at one half hour, 198 at one hour, 130 at two hours, 125 at three hours, and 127 mg/100 cc at four hours (Table 1, Figure 1). Her treatment up to now consists



Comparison of standard oral and cortisone-glucose tolerance tests performed early in the stage of remission, and repeat standard test eight months later.

only of a 1,200 calorie diabetic diet which she confesses is most difficult for her to maintain. Her weight has recently gone up to 182 lbs., yet her post-prandial blood sugars have all remained below 115 mg/100 cc. Because of some episodes of "heaviness" in her chest, an electrocardiogram was recently taken and revealed changes compatible with coronary disease of the posterior wall. A second oral standard glucose tolerance test was performed on November 30, 1967, which again showed a normal curve (Table 1). Her liver function studies have also all been normal.

### Discussion

Over one hundred years ago physicians observed that the diabetic state could be improved and some patients even rendered aglycosuric by strict reduction of caloric intake.[3] It was also observed that such a remission was only temporary and that the term "cure" was a risky one to use. Joslin[4] proposed certain criteria for a "cure" of diabetes even though he felt that the term should never be suggested to patients. These are:

1. The diagnosis of diabetes is based on glycosuria of 0.5% or more and a fasting blood sugar of at least 130 or a post-prandial blood sugar of 170 mg/100 cc or more on at least two occasions a month apart.

2. The duration of proved diabetes should be recorded in months, and the longer the duration the greater the meaning the term "cure" will have.

3. As a test for recovery, the patient should be aglycosuric and have normal fasting sugar and post-prandial blood sugar after a meal that contains at least 40% of the carbohydrate for the 24 hour period. A normal glucose tolerance test is even a better test of recovery.

4. A "cure" is accepted only after a proven case of one or more months duration con-

forms to the test of recovery at the beginning and end of a period of 5 years or more.

Thus not only should a "cure" of diabetes not be suggested to the patient, but it seems unrealistic for the physician to consider such a thing himself. Even so, temporarily placing a patient in remission is possible and various opinions as to the mechanisms involved have been suggested. A case of "remission" of diabetes has been defined as a patient previously requiring 50 or more units of insulin daily, then abruptly ceasing to require more than a small fraction of the previous dose.[1]

In 1929, John[5] described two cases of remission of diabetes in patients of middle age. One was a 55-year-old male acromegalic who responded very rapidly to diet and insulin and was taken off insulin after a one-month period, with a normal glucose tolerance test shortly thereafter. The other case was that of a 37-year-old woman who reverted to a normal glucose tolerance shortly after an "absolute fast" of 48 hours. He concluded that diabetes is reversible if the pathologic process in the islets has not gone beyond a certain stage. Thus very vigorous treatment of the early diabetic is most important. In 1939, Newburgh and Conn[6] reported their studies on obese middle aged diabetics. They found that nearly 50% would revert to normal glucose tolerance after reduction to normal weight. A few years later Newburgh[7] studied 62 obese middle aged diabetics who were treated with weight reduction only. In this group, 77% reverted to normal glucose tolerance tests during treatment although many did not actually achieve their normal weight. He concluded that the reason some patients did not respond favorably after significant weight reduction may be the development of irreversible damage to the islets due to prolonged hyperglycemia. Recently O'Sullivan and Hurwitz[8] studied 83 non-pregnant women who had diabetic glucose tolerance tests yet needed no hypoglycemic agents. The patients were told the merits of maintaining normal weights, but no dietary enforcement was used. They were followed by repeated oral glucose tolerance tests at six-month to yearly intervals. Of the 83 early diabetics, 28% reverted to normal glucose tolerance tests. Fourteen of the 18 who lost at least 10 lbs showed marked improvement. Of the patients with fasting blood sugars of less than 100 mg/100 cc, 72% showed improvement over the two-year period. These authors felt that a normal fasting blood sugar on initial diagnostic oral glucose tolerance test was the single most important factor favoring improvement in glucose tolerance.

One of the unique aspects of the case presented above is the development of remission after a period of ketoacidosis. Harwood[3] in 1957, reported a very similar case in a young man who reverted to a normal standard glucose tolerance test four months after being admitted to the hospital in diabetic ketoacidosis. He asked the question: Why aren't there more remissions if this phenomenon depends on our ability to decrease the stimulus to the pancreatic islets by decreasing caloric intake and using supplementary insulin? He felt that the inherent weakness of the beta cell of the diabetic plus a great variability of environmental factors has much to do with individual response.

Another unique aspect of our patient is the fact that although she showed very little weight reduction and dietary management once out of the hospital has been at best very difficult, she has still proceeded to pass into remission despite her obesity, a urinary tract infection, and some recent emotional stress. We do not know her fasting blood sugar or anything about her ability to handle a glucose load prior to becoming overtly diabetic. The presence of possible early coronary artery disease in her family suggests familial disturbed carbohydrate metabolism. The cortisone glucose tolerance test could be called "negative" by Fajan and Conn's criterion since the two-hour blood sugar is below 140 mg/100 cc.[2] Yet Duncan[9] adds that the blood sugar at one hour should be less than 180 mg/100 cc. Since this patient's one hour value was 198 mg/100 cc, this would place her in the borderline or subclinical category, the two standard glucose tolerance tests being normal. We have been unable to detect the precipitating cause of her episode of overt diabetes in November of 1966. Her obesity seems not to have been a major factor since she lost a very small amount of weight and presently is back at her previous weight of over 180 lbs with normal standard glucose tolerance tests. Perhaps she does fit into the category of those patients with fasting blood sugar below 100 mg/100 cc on glucose tolerance testing who O'Sullivan and Hurwitz[8] feel have a better chance of remission.

Our plan is to follow her closely with the expectation that she will revert back to overt diabetes mellitus in the future. It is also hoped to study her child and perhaps other members of her family for disturbed glucose tolerance although up until now this has not been possible.

## Summary

This is a case report of a 36 year old obese woman who presented in marked ketoacidosis as the first indication of disturbed carbohydrate metabolism. Within three months of this episode she was off all hypoglycemic agents and in a state of remission. This case is unique because of the apparent insignificant role of obesity and weight loss in her clinical course, and the rapidity with which she passed into remission following diabetic ketoacidosis.

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## INFECTIOUS DISEASE PROGRAM

The program for the *Fifth Annual Infectious Disease Symposium* on May 2-3, 1968, to be presented by the Delaware Academy of Medicine and the Wilmington Medical Center is as follows:

Thursday May 2, 1968
9:00 Registration and coffee
9:20 Greetings: G. B. Heckler, M.D., President
Delaware Academy of Medicine
9:30 Host Defense Mechanisms in Viral Infections
Richard B. Hornick, M.D.
10:30 Specific Inflammations of the Heart
Theodore E. Woodward, M.D.
11:30 Trends in Management of Endocarditis
Monroe J. Romansky, M.D.
12:30 Lunch (Guests, Delaware Academy of Medicine)
1:30 Problems in the Management of Pyelonephritis
J. McC. Murdoch, M.D.
2:30 Round Table Discussion: Prevention of Infection
Robert Wise, M.D., Moderator
Drs. Hornick, Murdoch, Romansky, Woodward
4:00 Adjournment

Friday May 3, 1968
9:00 The Use and Abuse of Antibiotics in Hospital Practice
J. McC. Murdoch, M.D.
9:15 Hospital-acquired Infections
Richard B. Hornick, M.D.
10:40 Bacterial Meningitis
Monroe J. Romansky, M.D.
11:30 Buffet Lunch
(Guests, Wilmington Medical Center)
12:15 Armand T. Wilson Memorial Oration
Progress in Streptococcal Research
Rebecca C. Lancefield, Ph.D.
1:15 Adjournment

# MUMPS VIRUS VACCINE, LIVE*

**• With the licensing of the new mumps virus vaccine, live, questions as to its development and use may be answered by the article below from The Morbidity and Mortality Weekly Report published by the National Communicable Disease Center.**

A live attenuated mumps virus vaccine* has recently become available for general use. It is, therefore, appropriate to describe the circumstances under which this vaccine might be considered for use.

Mumps, one of the common communicable diseases, is observed with greatest frequency in school-age children. However, approximately 15 percent of reported cases occur after the onset of puberty. Overt evidence of central nervous system disease with sequelae is rare, although meningeal involvement appears to be common. Orchitis has been reported in up to 20 percent of the clinical mumps cases occurring in post-pubertal males. Symptomatic involvement of other glands and organs is observed less frequently.

All naturally acquired mumps infections, including the estimated 30 percent which are subclinical, confer durable immunity.

### Live Mumps Vaccine

Live mumps vaccine is prepared in chick embryo cell culture. It produces an inapparent, noncommunicable infection following administration. Febrile reactions and mumps-like symptoms have not been associated with the vaccine.

More than 95 percent of susceptible vaccinees develop detectable antibodies after vaccination, although titers are lower than those induced by natural infection. The pattern of antibody persistence parallels that seen following clinical mumps although at a lower level. The long-term duration of antibody is unknown at the present time; individuals have been observed for only two years following vaccination because the vaccine is a recent development.

Excellent protection against naturally occurring mumps has been documented in vaccinees for the first year after vaccination. Limited data on natural exposure during the second year indicate continuing protection.

### Recommendations for Vaccine Use

Live mumps vaccine may be considered for use in children approaching puberty, in adolescents, and in adults, especially males, if they have not had mumps.** The vaccine is not specifically contraindicated for younger children, but until more information on the duration of immunity is available, the vaccine is not recommended for routine use. Furthermore, mumps immunization should not be allowed to compromise the effectiveness of public health programs of already established importance.

#### *Age*

Live mumps vaccine should not be administered to children less than 12 months of age because of the possible persistence of interfering maternal antibody.

#### *High Risk Groups*

Epidemic mumps can be particularly disruptive to normal routine in large groups of susceptable individuals. Children living in institutions, for example, might benefit from vaccination against the disease.

#### *Prevention of Natural Mumps Following Exposure*

Adults and adolescents who are susceptible to mumps by clinical history present a perplexing medical problem when exposed to mumps.*** It is not now known if live mumps vaccine will provide protection when administered after exposure. There is, however, no contraindication to its use at that time.

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*The Public Health Service Advisory Committee on Immunization Practices meeting on October 12, 1967, reviewed all available data on the recently developed live attenuated mumps virus vaccine and prepared the following recommendations on its use in public health and preventive medical programs.

*Official name: Mumps virus vaccine, live

**The single individual dose recommended by the manufacturer should be employed.

### Precautions in Using Live Mumps Vaccine

*Severe Febrile Illnesses*

Vaccination should be postponed until the patient is completely recovered.

*Marked Hypersensitivity to Vaccine Components*

Mumps vaccine is produced in chick embryo cell culture and should not be given to persons hypersensitive to ingested egg proteins. Also, the vaccine contains small amounts of neomycin, so it should not be given to individuals known to be sensitive to this antibiotic.

*Leukemia, Lymphomas, and Other Generalized Malignancies*

Theoretically, attenuated mumps virus infection might be potentiated by other severe underlying diseases, such as lymphomas and generalized malignancies.

*Altered Resistance from Therapy*

Steroids, alkylating drugs, antimetabolites, and radiation may predispose to untoward complications due to altered resistance.

*Pregnancy*

Mumps virus infection is not known to exert any untoward effects on the developing fetus. It is reasonable on theoretical grounds, to avoid using the live mumps vaccine during pregnancy.

### Simultaneous Administration of Live Mumps Vaccine With Other Antigens

In order to evaluate the live mumps vaccine adequately, its simultaneous administration with other vaccines should be deferred until results of controlled clinical investigations are available. Until then, it is recommended that mumps vaccination be separated from other immunization procedures by about one month whenever possible.

### Continued Surveillance

Careful surveillance of mumps is particularly important now that an effective vaccine is available. There is need to emphasize reporting of mumps cases, complications of cases, patterns of vaccine use, effectiveness of vaccine after exposure to natural infection, and general vaccine performance. These data will help to delineate the epidemiologic characteristics of the disease and to define future use of the vaccine.

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***Inactivated mumps vaccine and mumps hyperimmune globulin are of questionable effectiveness under these circumstances.

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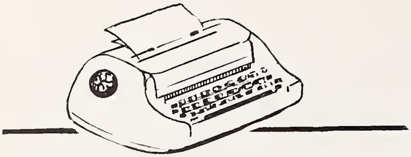
## THE NAKED APE

Desmond Morris, Former Curator of Mammals at the London Zoo. (*McGraw-Hill.*)

There are 193 living species of monkeys and apes. One hundred and ninety-two of them are covered with hair. The exception is a naked ape self-named Homo sapiens. This unusual and highly successful species spends a great deal of time examining his higher motives and an equal amount of time studiously ignoring his fundamental ones. He is proud that he has the biggest brain of all the primates but attempts to conceal the fact that he also has the biggest penis, preferring to accord this honor falsely to the mighty gorilla. He is an intensely vocal, acutely exploratory, overcrowded ape, and it is high time we examined his basic behavior. Homo sapiens has remained a naked ape nevertheless; in acquiring lofty new motives, he has lost none of the earthy old ones. This is frequently a cause of some embarrassment to him, but his old impulses have been with him for millions of years, and his new ones only a few thousand at the most — and there is no hope of quickly shrugging off the accumulated genetic legacy of the whole evolutionary past. He would be a far less worried and more fulfilled animal if only he would face up to this fact. Perhaps this is where the zoologist can help.



# Special Reports

## CORONARY CARE UNITS AND THE AGGRESSIVE MANAGEMENT OF ACUTE MYOCARDIAL INFARCTION

**St. Vincent's Hospital, September, 1967**

Marvin Dorph, M.D.

The following report abstracts a two day session at St. Vincent's Hospital in New York City, which concerned coronary care units and the aggressive management of acute myocardial infarction. The presentation was up to date, sensible, and the men who lectured, very realistic.

Drs. Day, Mallick, and Showenfeld, all of whom are employed by a hospital to run coronary care units, discussed their views of coronary care units. They stressed the following:

1 The American public doesn't know how to behave; therefore, the waiting room should be kept as far from the coronary care unit as possible.

2. Private rooms are felt to be essential if practical for that particular hospital.

3. There should be two or more defibrillators at all times on the floor. They should never be permitted to gather dust; the electrodes should be polished with steel wool or other fine sandpapers. Many of the men do this in their own coronary care units themselves to insure getting a quick result when they need it.

4. The nurse is the most important figure in the coronary care unit and must be continually trained and have practice in learning how to quickly use the defibrillator when necessary.

5. There should be one director of a coronary care unit; he should establish policy and set down rules of treatment which everyone should follow, regardless of his own thoughts; otherwise chaos supervenes, and mortality figures rise.

6. Some of these men in charge have a home recorder so that EKG's may be obtained over the telephone. This provides the doctor with immediate information when he needs it.

7. Resuscitation practice is most important. We were fortunate enough to practice defibrillating dogs in the Animal Laboratory during the meeting — one way to find out how easily mistakes can be made.

8. Admission to a coronary care unit should not depend on the EKG but on the doctor's index of suspicion.

9. The mortality from acute myocardial infarction is still from twenty to thirty per cent in most coronary care units.

10. Most physicians have the nurses examine the patient several times during the day and record notes or call the doctor since it is impossible for a doctor to examine a patient once daily and be aware of all the things that may have occurred in the past twenty-four hours.

11. Various technical points were also discussed: grounding is most important and requires three-wire circuits; battery driven pacemaker type of equipment should be used so as to avoid catastrophes.

12. Phenobarbital should be used as a sedative when Lidocaine is used since Lidocaine has been known to cause convulsions, particularly when given in a dose of two grams a day.

13. Needle electrodes are used and changed almost every other day; the trauma is negligible and patients tolerate it quite well. The beeper is turned off during the day, but is kept on at night; the beeper bothers the doctors far more than it does the patients or the nurses. During the day at St. Vincent's, all the monitors have the beeper turned off, al-

though the lights continue to work so there is less confusion and less noise. All the monitors are kept outside the room which also reduces the confusion and prevents the patient from knowing what is going on with his particular monitor, thereby reducing anxiety.

### Heart Failure

Drs. Brown, Lycoff and Meltzer discussed heart failure in acute myocardial infarction, about which they were not in total agreement. Dr. Brown stated that the overuse of digitalis in coronary patients is appalling: digitalis increases ectopic pacemaker activity and decreases conduction. In his experience, heart failure was found to occur in forty-five per cent of the cases and shock in twenty-five per cent of the cases. When there was no arrhythmia present, morality was thirteen per cent but with shock and failure, twenty-seven per cent. If one arrhythmia is present twenty-three per cent morality was found and with shock and failure, forty per cent. With multiple arrhythmias, thirty-five per cent mortality occurred and in those patients in both shock and failure, there was a mortality of fifty-five per cent.

Dr. Lycoff discussed heart failure and cardiogenic shock. He feels the only direct approach to this problem is digitalis along with Isuprel and left ventricular assist when necessary. The immediate causes of "power failure" of the heart cannot be corrected and, unfortunately, "power failure" is characteristic of myocardial infarction. "Power failure" can spontaneously be reversed and this is something to be hoped for. The conclusion of Dr. Lycoff was that no therapy alone seems to be effective when severe "power failure" occurs and the ultimate in treatment is then required.

The speakers disagreed whether digitalis or diuretics should be used when patients are in failure; most use digitalis.

Dr. Meltzer stated that his coronary care unit reduced the mortality from thirty to twenty per cent by aggressive management of heart failure. Fifty-nine per cent of the patients with infarcts develop failure and of these, forty-four per cent die. He treats most with digitalis.

### Shock

Dr. Ayres and Dr. Kuhn discussed shock and low blood pressure. Dr. Ayres suggested that we forget blood pressure because by the time it falls, shock is advanced. He suggested that clinical observation is the best approach to the problem: agitation, decrease in urinary output below twenty cc/hr, cyanosis, coolness of the skin, sweatiness, and poor quality of the heart sounds are most helpful in diagnosing shock. There are three types of shock to be looked for in patients: hypovolemic, cardiac shock, and bacterial shock. Thus in a patient who is in shock, there may be many other causes than his heart disease alone. Isuprel increases the oxygen to the heart muscle. The low blood volume in many cases has to be replaced. Oxygen is definitely necessary. Metabolic acidosis or alkalosis is harmful to a shock patient and these, too, should be looked for and corrected where possible. Dextran should be used when the venous pressure is lower than it should be and digitalis when the venous pressure is higher.

Vasopressors, such as Aramine and Levophed, were discussed. Some men do not use them at all and others do, although Levophed may induce arrhythmias. One man uses Isuprel drip, one milligram in five hundred cc of fluid, and suggests that this be infused very slowly along with the use of digitalis when needed and oxygen. The central venous pressure and renal blood flow are followed carefully. Regardless of treatment patients in shock with myocardial infarction have a very high mortality. Shock with bradycardia is helped by atropine. Steroids have been used with equivocal results. Other men use Isuprel along with Levophed in separate bottles, trying to adjust the doses to keep the blood pressure in a reasonable range. Dr. Kuhn stressed the importance of maintaining coronary perfusion pressure. Other drugs, which should be considered for shock but are not too well known, are Dibenzyline and Dopamine; a trial of these drugs might be very worthwhile.

### Oxygen

St. Vincent's Hospital has a "Puritan machine" which delivers seventy to ninety per cent humidified and warm oxygen. The Puritan machine costs about $90 and if you add a compressor, it's another $40, so the patient can use this at home. This type of unit is preferred, rather than the Byrd and Bennett machines. Volume is much more important than pressure delivered. We have been trained to worry about the pressure delivered by mask, forgetting that volume is still the most important feature. Normal oxygen tension should be about eighty and in infarction is down to sixty mm/Hg. Deep breathing in these patients should be encouraged. The Portex tube is used for intubation rather than doing tracheostomies. This may not be tolerated by many patients, but when possible, is a very valuable asset to a coronary care unit or to an emergency ward.

### Pacemakers and Arrythmias

Any patient who shows even one dropped beat should be considered for a pacemaker along with those patients with complete AV block and those with a marked bradycardia. They have no hesitation whatever in putting in a pacemaker in patients with acute myocardial infarctions, even though the patients have to be wheeled down to the lower floors and over to another building to have it inserted. Putting in a pacemaker is routine in this hospital, and they have never had any fatality thus far with this procedure. In fact, Dr. Grace, who runs the coronary care unit at St. Vincent's, has issued the edict that any patient in the emergency room who comes in with any kind of block, with or without myocardial infarction, is to have a pacemaker inserted immediately. About forty per cent of these pacemakers are not turned on but they are ready should they have to be, and the incidents of complications from them is almost negligible. Dr. Richard Stock stated that ventricular standstill occurs as a consequence of complete heart block, which in myocardial infarction does not usually occur after the third day. Most posterior infarcts develop first and secondary heart blocks whereas anteroseptal infarcts show right bundle branch block with large Q waves in $V_1$, etc., and no evidence of primary and secondary heart block. Atropine is used quite often in these cases. One-third of all right bundle branch block patients will develop complete heart block. Ventricular fibrillation may be heralded by premature ventricular contractions or angina alone and may occur when the pacemaker is being used and fires in the T wave complex of a premature ventricular contraction. This is a rare occurrence but does occur and when ventricular fibrillation occurs in this situation, immediate defibrillation has to be used. Spontaneous venticular fibrillation usually occurs on the first day.

Dr. Day discussed the aggressive management of arrhythmias which occur in seventy to eighty per cent of all myocardial infarctions. Bundle branch blocks developing after myocardial infarction are associated with a very high mortality — cardioversion for arrhythmias in myocardial infarctions has not been found to be disastrous in any case in his experience.

The anti-arrhythmia drugs were discussed. Lidocaine can be used rather safely and doesn't reduce the blood pressure as Pronestyl will do. Dilantin is useful, in digitalis intoxication patients with arrhythmias; a dilute solution of one hundred milligrams given slowly intravenously has been used with very good success. Inderal (also known as Propranolol) is a new blocking agent coming on the market in October of this year. Two and a half to five milligrams of Inderal is used in many ventricular arrhthymias and digitalis intoxication patients. It should be remembered that all these agents are myocardial depressants; Lidocaine seems to be the safest; Inderal can be an extremely dangerous drug and must be watched closely. It may produce bradycardia, hypotension, and decreased cardiac output and should be given very slowly with monitoring.

Pacemakers were also discussed by Dr. Gregory. He feels that bradycardia of fifty beats per minute or less indicates the use of a pacemaker in patients with myocardial infarction. The pacing rate should be above sixty beats per minute and pacing should be used in chronic heart block, secondary block or first degree block such as nodal and sinus bradycardia; many of these occur with inferior infarctions.

Sinus bradycardia with a rate below fifty per minute, can be treated by the use of atropine or Isuprel while the pacemaker is being attached in an effort to get the rate up to sixty beats per minute. The pacemaker should be inserted early in bilateral bundle branch block with inferior infarctions since arrest may occur. It is felt that atropine helps the sinus node but the complications of atropine include urinary problems as well as psychotic problems. One milligram doses of atropine (a large dose) are used.

Dr. Minogue, who runs a coronary care unit in a small hospital in New Jersey, discussed cardiac arrest which occurs as ventricular fibrillation, or asystole, and mechanical failure. With venticular fibrillation, defibrillation must be done immediately, along with massage and mechanical ventilation, sodium bicarbonate for acidosis, insertion of an airway, and then Lidocaine or Pronestyl. Most units can defibrillate within thirty seconds with great success. In ventricular asystole, a vigorous blow to the chest may prove very worthwhile. Mechanical failure of the left ventricle is a hopeless situation. In two hundred thirty-one cases of transmural infarctions which he treated, there was a morality rate of twenty-four percent the first year and eighteen per cent the second year.

The DC versus AC defibrillations were discussed by Dr. Day, who does not use general anesthesia for elective conversions. He much prefers to use Valium ten or fifteen milligrams intravenously, slowly, and then gives shock; he has not had any trouble in the past two years with this technique. The drug is diluted and injected slowly, and when the patient gets completely drowsy or falls asleep, the shocking procedure is carried out. With the DC defibrillator, one hundred joules is usually used for the first time. The Zenith machine (made by Baxter-Travenol) gives the best results because it has very little leakage whereas others have a great deal.

Various "pearls" concerning particular arrhythmias included the following: ventricular tachycardia in runs of four to eight beats is a very serious matter and shocking procedures should be considered at this point. In ventricular tachycardia with runs of four to eight beats within a minute, Lidocaine should first be used, then, shock.

If a patient has a third degree heart block with ventricular premature beats, Isuprel may be used (in the form of a drip) but many men would prefer not to.

In digitalis block, when the patient then subsequently develops ventricular tachycardia, shock is used if the patient begins to fail, otherwise intravenous Lidocaine is used first. Shock may precipitate ventricular fibrillation in an overdigitalized patient.

A pacemaker in a patient with ventricular tachycardia may be worthwhile, where all else fails. Inderal, ten milligrams four times a day, along with the pacemaker may be very worthwhile to hold down the SA node rate of tachycardia.

Lidocaine may produce psychotic episodes, methemoglobinemia and convulsions. Prolonged ventricular tachycardia in the patient who is not in shock should call for immediate cardioversion along with 100 mg of Lidocaine.

Prophylactic quinidine is still in question. The point was stressed that four hundred mg should be given every six hours; too small doses are often used. Blood levels for quinidine are very valuable since there is the great variability in absorption of quinidine.

Repetitive ventricular tachycardias are difficult to treat; Lidocaine should be used along with cardioversion and if ventricular tachycardia continues, then the use of Inderal should be considered.

Acute atrial fibrillation can occur commonly in coronary infarction and may revert rather easily. However, in chronic auricular fibrillation, although there has never been a study made as to the true incidence of associated coronary infarctions, it seems to be rare.

When atrial fibrillation occurs with coronary infarction, most people do nothing. If the rate, however, is one hundred and possible failure is suspected, then digitalis is used or cardioversion followed by quinidine. Oubain is frequently used.

The meeting ended with Dr. Killip's discussion of the evaluation of a coronary care unit and its value to the community. A lot of factors must be considered such as the admission policy of a coronary care unit, the population characteristics in a coronary care unit, the diagnostic criteria for acute infarction, the length of stay in a coronary care unit, mortality incidence of cardiac arrest, comparison of regular care and coronary care units, cardiac function and progress of the survivors. The factors influencing the mortality in acute myocardial infarction are varied and great; sixty per cent of the deaths occur in the first hour before the patient ever reaches the hospital. It was suggested that Dr. Lown has such excellent survival statistics because most of his cases don't reach the private hospital before the sixth hour after acute myocardial infarction.

The course provided much food for thought and should stimulate us locally to institute coronary care units where possible, along the lines as suggested by Dr. Clagett in his recent lecture.

It should also be a stimulus to train nurses since one of the lectures was presented by four nurses. These nurses go through intensive programs of training, the doctors in the coronary care units take them on rounds constantly, and the nurses have an amazing knowledge of arrhythmias and what to do in a given situation.

## THE NURSING SCHOOL OF WILMINGTON

### Progress Report

Mary G. Healy, R.N., *Director*

Challenge, excitement and stimulation are words with which the faculty, staff and students of the Nursing School of Wilmington are quite familiar. The past two and a half years have provided the ultimate in each of these action words. Planning the two year diploma program was a task full of the challenge, excitement and stimulation of which I speak, but implementing the program has indeed been the ultimate.

In September 1965, the first class, which numbered fifty-one eager, enthusiastic students, entered the school. This class realized that they were joining the faculty in an adventure which was new and exciting. They very quickly accepted the student role in a way which gave evidence of the fact that we had a highly motivated group with which to work.

During the next two years, we watched these students accept the challenges and responsibilities of each aspect of the curriculum in a way which continued to provide stimulation for the faculty.

In the planning for the Nursing School of Wilmington, we had provided an opportunity for many persons formerly denied admission because of age, marital status, and the requirement of living in the Nurses' Residence. In the first class, our students ranged in age from 17 to 52 years. We had seven married students and eight students who lived at home. There were also three students who were licensed practical nurses and twenty-three who had been finished high school for a year or more.

It has been most rewarding to the administrative staff and faculty to see forty-four members of the first class complete their program. When one realizes that this represents 86% completing the program, one must give tribute to the students and faculty. In our previous experiences, we often found that only about 60% who entered the schools finished. We also know from statistics available that the national figure for students finishing runs about 67%. What factors contribute to the record which has been achieved by our first class? We feel that the length of the program, the diversified backgrounds and ages of the students and the faculty's approach to curriculum implementation have been prime factors.

Thirty-three members of the first class have already taken the licensing examination and have achieved at a high level. Ninety-one percent have been licensed and 9% will have the opportunity to re-write the examination when it is given again in Delaware. The figures given above represent thirty graduates who were successful and three who were not in obtaining their license. Each of the three who were not successful failed one of the five subject areas given (a different one in each case), and did well in all other areas. The eleven from whom we have not received reports will be taking their examinations at a later date.

Twenty-two of the graduates are employed by the Wilmington Medical Center, one is with the Visiting Nurse Association and one with the Alfred I. duPont Institute. Other graduates are working in California, Florida, Maryland, Missouri, Montana, New Jersey, Texas and West Virginia. So far the feedback on the work our graduates are doing has been very encouraging. Employers are apparently finding in them the same motivation and enthusiasm which was so obvious to us while they were students.

The two classes that are presently enrolled are following in the footsteps of the first class as to age range, marital status, enthusiasm, and eagerness to learn.

The eight quarters, each twelve weeks in length, provide the students with learning opportunities necessary to give good nursing care at a professional level. The blend of biophysical, social, and nursing sciences stimullate the students to investigate and learn the many facets involved in patient care. Under the guidance and direction of instructors, the students gain clinical experience in the Wilmington Medical Center, at the Delaware State Hospital and in selected community agencies. The Family Court, Harlan and Meadowood Schools, Child Diagnostic and Guidance Center, and Well Baby Clinics are a few examples of the community agencies used. They also have, in conjunction with their experience in maternity nursing, visits to the offices of obstetricians.

The Nursing School of Wilmington is not problem-free inspite of how it may sound. No, we are not unique. Adequate numbers of qualified faculty members and applicants are the concern of all nursing programs. At this time, much is being written about this concern in relation to the nursing shortage. Much will continue to be written; however, the experiences of the past two years have proven to the faculty of the Nursing School of Wilmington that the program which we have implemented is providing an important service to the community. We are preparing nurses who are interested in, qualified for, and dedicated to giving effective and efficient patient care.

Enrollment during the past two years has not increased. In fact, there has been an overall decrease of about 20%. However, since diploma schools still provide over two-thirds of the graduate nurses, we know we must work conscientiously to expand our school enrollment. To this end, the administrative staff and faculty are dedicated and diligently applying themselves.

With the spirit of our students, the performance of our graduates, the marvelous support from an interested, active board of trustees, and the cooperation and support of many groups and individuals in the community, the Nursing School of Wilmington will grow. The school will continue to prepare and provide nurses who are interested in, qualified for, and dedicated to giving effective and efficient patient care.

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## THE PHYSICIAN AND MORAL COMMITMENT

Perhaps it is time the medical profession developed the three cardinal qualities of the politician, namely a feeling of responsibility, a sense of proportion and finally, passion. In the latter instance I mean passionate commitment to one's guild or one's own expert interest.

The time is ripe for new moral commitment and action in the public interest for as Dante said, *"The hottest places in Hell are reserved for those who, in a period of moral crisis, maintain their neutrality."* John H. Knowles; *Conn. Med.* 30:743, 1966.

# Letters to the Editor

To the Editor:

The ability of physicians to maintain life for very long periods in the unconscious patient raises the question as to how long such skills should be deployed. As physicians we are eager to promote the recovery of everyone who can do so. In order to deprive no one of his chances on this score it is relevant to know the longest periods of coma which have been followed by useful survival.

A committee of the Massachusetts General Hospital is studying our own records and the world literature to determine pertinent features in all patients who, despite coma for over 5 weeks, have made a useful recovery. We think it is vital not to overlook any well documented patient in this category. We should be grateful if any reader of this journal would draw our attention to any case published under a title which is not indicative of survival after prolonged coma. We are also eager to receive accounts of such cases as yet unreported. A publication incorporating our own and others' data is planned.

We should be grateful if you would publish this letter in your journal either in a section for correspondence, as a special brief communication, or in any other fashion you see fit.

William H. Sweet, M.D., D.Sc.
Chairman, Committee on Management of the Unconscious Patient
Massachusetts General Hospital

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To the Editor:

I would like to clarify my remarks made at the Wilmington Medical Center's Medical Mortality Conference in December. Simply stated, I believe that there is nothing more personal than a man's own life and body. It should be his to use and do with as he wishes, so long as it does not interfere with the welfare of others. He should be able to give away or sell a part of it for the benefit of others or to lay down his entire life if he so wishes to benefit someone else. Or even if it is only for his own comfort and satisfaction.

With kidney transplants and now even heart transplants becoming increasingly frequent, it behoves us of the medical profession to make up our minds whether it is feasible for a man to donate anything right down to his life, provided that he not be demented or in any way mentally ill at the moment. The instinct of self preservation in the well and healthy makes it difficult for them to conceive of anyone who would desire to end his life. We who deal with the halt and the lame know that there are many living out an unhappy existence and wishing for the end to come. I have cared for several members of my family through their latter years of infirmity; mostly they were home bound, occasionally bedridden, but all with clear minds. They all had bounced me on their knees and most had changed my diapers. They knew me well and minced no words with me. Their feeling was practically unanimous: "*There are better ways to die than this.*" I was urged to give them an overdose of sleeping medication, but this was always in private. They recognized that I would be subject to retaliation or discipline by the law if I acceded to their request and secondly they did not wish the stigma presently attached to suicide. Since, for the past fifteen years at least, it has been my habit to tell patients exactly what they want to know (and frequently they do want to know if they have only a little time left), I have had many discussions with dying patients about this particular problem and from my experience I would estimate that if dying patients are given the choice as to whether they could select their own time and manner of passing (which we have in our power to give them at present) they would vote better than ten to one in favor of legalized suicide.

I do not advocate taking a man's life if he can do it himself but if he so desires, with appropriate signatures and legal certification, he could sign for an operation (as we sign for any operation now) that would take him to the operating room where organs could be removed (such as a heart) with the full knowledge that he would not awaken on this earth from the anesthesia.

For generations and centuries we have been taking lives of healthy people who did not want to die. This has been done by legal procedure to protect the community and has been done by act of war to protect the nation. History and fiction are full of tales of the gallant men who gave their lives to help others. There is a great deal of pleasure in giving. "Greater love hath no man than that he should lay down his life for his friend."

I think the County or State Medical Society should appoint a Committee to investigate the desires of dying patients, the feelings of other patients as to their wishes in this matter, to poll the physicians on their opinions, to investigate the present forms of comfortable passing that can be offered to the patient and see what the outlook for improving on these are, to then consult with the legal profession with this information on hand and finally with the elected officials and legislators to bring it before the people for their acceptance or rejection.

William T. Hall, M.D.

To the Editor:

I think that perhaps a short note of explanation is in order as to why we recently changed the name of the Isotope Laboratory of the Wilmington Medical Center to the Department of Nuclear Medicine.

This change was basically made because the title Isotope Laboratory did not adequately convey the scope of services now offered by a Nuclear Medicine facility. The Society of Nuclear Medicine felt that it was somewhat confusing to have facilities such as production and separation laboratories designated the same as facilities where patients are treated. For instance, all of the large production facilities in this country, such as Brookhaven, The Union Carbide plant at Oakridge, and many others are properly designated as isotope laboratories where they deal in the production of and manufacture of different isotopes, but have nothing to do with the management of patients or clinical disease entities. Also, since many of our investigations have and do involve the participation of the physician in the Nuclear Medicine Laboratory, we feel that there is a little more to the patient's interpretation of his test than a test tube evaluation of some results. Thus, we have been asked by the National Society to use the term Department of Nuclear Medicine, to encompass the idea of the medically oriented treatment and investigation of a patient by the means of radioactive isotopes.

Robert L. Meckelnburg, M.D.

To the Editor:

At the request of the American Medical Association, the newly organized "International Health Activities Committee" of the Woman's Auxiliary to the Medical Society of Delaware is conducting a drive to assist in World Medical Relief.

We will collect, pack, and ship, any of the following medical and surgical supplies:

1. Any surgical instruments
2. Any diagnostic instruments
3. Sutures
4. Re-usuable syringes and needles
5. Doctor's lab coats (usable condition)
6. Nurse's uniforms (usable condition)
7. Laboratory supplies and equipment
8. Small electric or steam sterilizers
9. All medical textbooks including P.D.R. (three years back to present)
10. Rubber goods in usable condition
11. Arthopedic appliances

*12. ALL drugs and pharmaceutical samples

If you can assist us in this urgent plea, please contact any member of the Executive Committee of the Woman's Auxiliary, or call directly to the Academy of Medicine, or call me:—Mrs. James P. Aikins, Chairman, International Health Activities Committee, 12 Pelham Road, Welshire, Wilmington, Delaware 19803, Telephone: 762-1983.

(Mrs.) Kathleen Aikens

*Please Note!

# Deaths

It is with deep regret that the medical profession takes note of the death of Dr. Charles Leith Munson. Dr. Munson was a leader in the field of medicine, and particularly his specialty of general surgery, in Wilmington for many years.

Dr. Munson was born in Washington, D.C., in 1904 but grew up in Wilmington, attending Wilmington High School and graduating from Wilmington Friends School. He attended Dartmouth college, receiving a bachelors degree in 1926, and from there went to Jefferson Medical College in Philadelphia, receiving his M.D. in 1930. Following this he went to St. Luke's Hospital in New York for four years of internship and residency in surgery, and returned to Wilmington in 1934 to enter the practice of general surgery.

With the advent of World War II Dr. Munson joined the St. Luke's group and went to the European Theatre of operation. He was stationed in England with the Second Evacuation Hospital and landed seventeen days after D Day with the First Army in France. He was awarded the Bronze Star for meritorious service in the hospital unit working immediately behind the lines.

After the war Dr. Munson re-entered practice in Wilmington and was one of those instrumental in establishing a surgical training program at The Delaware Hospital, now Delaware Division of The Wilmington Medical Center. He was Chief of the surgical service for a number of years and is credited with much influence in establishing a high level of surgical practice here.

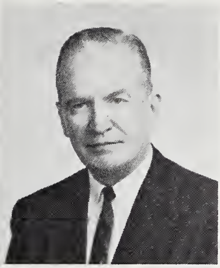
Dr. Munson received much professional recognition and had served as Secretary of The Medical Society of Delaware; President of New Castle County Medical Society in The Delaware State Hospital and chief of 1949. He was service surgical consultant to medical services at Delaware Park; he was also consultant to Blue Cross, Inc., locally. On a national level he was a member of the A.M.A., Fellow of American College of Surgery and Diplomate of The American Board of Surgery.

CHARLES LEITH MUNSON, M.D.

Dr. Munson's interests were not limited to medicine. He was a former member of The Wilmington Country Club, and a past president of The Wilmington Rotary Club. He enjoyed traveling and did such regularly. He also enjoyed hunting and was noted as an excellent camp cook.

Dr. Munson remained in active practice until September 1967, when extensive cancer forced his retirement, and died on January 21, 1968, at the age of 63. He is survived by his widow, Mrs. Florence Ely Munson, a son, a daughter, five grandchildren, two brothers and his mother, Mrs. Lewis S. Munson, Sr.

Dr. Munson will be missed both as a doctor and a person who contributed much to his community and who would have contributed much in the years to come. Despite his very busy professional life, Dr. Munson always had time to give help whenever sought, and took genuine pleasure in his ability to be of service. His insistance on high standards has made all of us in the profession his beneficiaries. A visiting lectureship in surgery has been established in his honor by the Department of Surgery.



# President's Page

## T + N = MN

In this hurry-up, complex world of the twentieth century everything is accomplished by computers, therefore my formula is apropos — N equals nurses, T equals Television, MN equals more nurses.

The State of Delaware is blessed with a fine educational television system, with a receiving set for every two classrooms. With this media and the apparent shortage of qualified instructors in our RN and LPN programs, it is natural for hospital administrators and nursing school directors to look for help to Educational TV. It is highly conceivable that every nursing school could be linked to our own TV system or, to go a step further, to our University of Delaware TV system.

Dean Mary Carl at the University of Delaware, I have been informed, has a nursing program second to none, so it is highly desirable to utilize this great reservoir of knowledge.

Accordingly, it is not at all difficult to recommend to the nursing faculty representatives a potential solution of encouraging more participation by top educators in the science of nursing because they can reach a greater number with a minimum of time and effort.

I do not intend to suggest that television will replace classroom instruction, but there could be no question in my mind that it would be a most effective means of stretching the effectiveness of superior teachers and thus relieving the pressures.

I can readily see the adoption of this media for refresher courses and detailed programs on new techniques that are appearing daily.

The television method of supplementing classroom teaching is new and is yet to be fully evaluated, but all proponents of the program are expressing great satisfaction with it. This method of teaching breaks trail for future development of a concerted attack on training and re-training needs throughout the entire health field.

Many other professional and technical specialties in our field may find the answer to their cries for assistance in the use of ETV or, as it is called, "The Big Teacher."

Daniel J. Preston

> For affirmation and talk are deceptive and treacherous, wherefore one must . . . occupy oneself with facts persistently if one is to acquire that ready and infallible habit which we call "the art of medicine."
>
> Hippocrates, *Precepts*

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

**Ampicillin**

In the few years since its introduction, ampicillin, a semi-synthetic penicillin, has become one of the most frequently used antibiotics, with many physicians prescribing it in place of penicillin G or penicillin V, and at times in place of other broad-spectrum agents. Like many antibiotics, it is often used where no antimicrobial therapy is needed or where other agents would serve better; but numerous studies have established its value in many infections. It can be administered orally, intramuscularly or intravenously.

In Vitro Activity — Ampicillin (Penbriton—Ayerst; Polycillin—Bristol; Omnipen—Wyeth) has the advantage over the natural penicillins of activity against many gram-negative organisms; unlike the other semi-synthetic penicillins, it is not resistant to the destructive action of penicillinase. In general, it is about as active as penicillin G against pneumococci and H. influenzae. It is also active against many strains of E. coli, Salmonella and Shigella, and against Proteus mirabilis, the strain that causes more than half of all Proteus infections. Most strains of the Klebsiella and the Aerobacter groups and all strains of Pseudomonas are resistant to it.

Meningitis — Ampicillin in large doses (150 to 400 mg/kg per day intravenously) is generally recommended as initial treatment of meningitis before the results of laboratory studies are known, since it is effective against most of the organisms responsible for bacterial meningitis. In infants under two months, however, gram-negative enteric bacteria are frequently responsible, and the combination of kanamycin (Kantrex—Bristol) and ampicillin is recommended.

Respiratory Tract Infections — For acute bacterial respiratory infection due to pneumococci or beta-hemolytic streptococci, either ampicillin or penicillin G can be used; when the infection is caused by H. influenzae, ampicillin is preferred.

Salmonella Infections — Many patients with typhoid fever and a few patients with other severe Salmonella (bacteremic) infections respond to oral ampicillin, but chloramphenicol is more likely to be effective (L. Manriquez et al., Brit. Med. J., 2:152 1965; W. L. Sanders, Brit. Med. J., 2:1226, 1965). Most Medical Letter consultants reserve ampicillin for patients in whom there is a contraindication to chloramphenicol or in whom the organism is resistant to it. *The Medical Letter*, Vol. 9, No. 20, Oct. 6, 1967.

Though *Medical Letter* consultants were not in full agreement about the relative clinical effectiveness of ampicillin and other antibacterial agents against some organisms, there was good agreement about its place in the treatment of those infections in which it shows high *in vitro* activity.

**New Specialities**

LMD 10% (Abbott) Rx

*Description:* A low-molecular-weight dextran for use by open-heart surgery teams as a priming fluid in pump-oxygenators during cardiopulmonary by-pass procedures. LMD is available in 2 forms — a 10% solution in dextrose 5% and a 10% solution in saline 0.9%.

**Talwin (Winthrop) Rx**

*Description:* A non-narcotic analgesic supplied in parenteral form, containing pentazocine 30 mg per ml, for use as a preanestetic medication, for the management of pain following surgery, during child-bearing, and for relief of all types of pain in acute and chronic medical disorders.

☐ Dosage: as directed.

☐ Packaging: in 1-ml ampuls, 2-ml half-filled disposable syringes, 10-ml multiple-dose vials.

*New Specialties*: American Druggist, August 28, 1967, page 42.

# Editorials

## A SEVEN-DAY HOSPITAL WEEK

How long can we continue to waste two out of seven days every week? Our hospitals are jammed and the number of diagnostic tests given per patient is steadily increasing. This tends to lengthen the average duration of stay, and frequently because of a delay in obtaining an x-ray or other special tests, there are additional delays in releasing the patient. Most hospital laboratories only run a limited list of tests on weekends. As a rule this is the same list as the one used for nighttime emergencies. All of these restrictions make it difficult to accomplish much for patients hospitalized during the weekend when services are not available.

A glance at the admission and discharge list demonstrates the high number of Friday and Saturday discharges and the increased admission rate on Monday. Recently because of scarcity of beds, patients for Monday surgery are admitted on Saturday in order to be sure of a bed.

It has become common for physicians to give their patients passes for Saturday and Sunday to hold the bed recognizing the rule that nothing will be done until Monday.

In many areas hospitals have faced up to the fact that they can no longer run on holiday schedules 2 days out of every seven. To ask a patient to spend 50 to 60 dollars on a pass is neither reasonable nor rational. Hospitals must run on a 7 day a week schedule, there seems to be no other answer.

The advantages will be enormous. Patients receiving physical therapy will no longer have to suffer a relapse every weekend. Up to 40% more non-emergent surgical procedures can be done per week than we are presently doing. The same figure should also be true for special procedures in x-ray and the laboratory.

There are some obvious disadvantages most of which are staffing and increased manpower requirements. However, these have been solved elsewhere and initially tend to drop the 40% increase capacity toward 20%.

The physician's objection is probably a major deterrent. But strangely, experience shows that there are a number of doctors who will be happy to use the facilities on Saturday or Sunday and arrange free time in their own schedule during the week. Patients much prefer to have weekend surgery or tests since they do not lose as much time from their work and children would miss less school. The housewife does not have to arrange for expensive baby sitters and the average length of stay of hospitalized patients is considerably reduced.

How much longer can we continue to hibernate for two days out of every seven? Most physicians already work a 7 day week why not the hospitals?

## EDITORIAL COMMENT

It is almost superfluous to remark that evaluation of any treatment of multiple sclerosis is exceedingly difficult. In the first place, since the etiology of this disease is unknown, it is not possible to erect a rational and directly related theory of treatment. It follows that any mode of therapy must therefore be evaluated empirically, i.e., through an objective study of patient response. The pitfalls here are several: First, the natural course of multiple sclerosis is so variable that any study must run long enough to encompass the natural remission rate; a large enough group of patients to reach statistical validity is of course implied. Secondly, it is necessary to deal separately with each mode of treatment; if drug, diet, and physical therapy programs are offered simultaneously to a single group of patients, how can it be said which treatment is effective? Finally, the danger in interpreting statements of subjective improvement in a group of hopeful patients is well known;

Continued on Page 56

# Delaware Academy of General Practice

## EXAMINATIONS FOR THE AMERICAN BOARD OF FAMILY PRACTICES

Your president, George E. Burket, Jr., M.D., announces that, "After careful consideration and consultation with representatives of the Advisory Board of Medical Specialties, the Executive Committee of the American Academy of General Practice has concluded that further publicity of July examinations will be postponed until after the final application is considered in February, 1968. The Executive Committee has also been informed that the packets concerning board examinations which the Education Commission anticipated sending to the Academy membership, could be construed as soliciting candidates for the proposed board. This is in violation of the essentials for formation of a new board."

"The information packets will, therefore, not be forthcoming at this time, but please be assured that all efforts will be devoted toward obtaining approval of our application for a primary certifying board in family practice."

"Many members and state chapter officers have indicated an interest in planning, organizing and attending continuing educational courses that systematically cover the *Core Content* of *Family Medicine*, published in *GP* November, 1966. An outline was enclosed for easy reference in planning continuation education."

"It is extremely important, however, in scheduling courses or programs, that there be no inference that they are in preparation for a certifying board. This would be improper and might well impair chances for approval of the application for an American Board of Family Practice now pending with the Advisory Board for Medical Specialties."

"The new specialty of family practice will utilize the skills, techniques, and procedures of all the traditional specialties. The unique function of the specialty of family practice is that it will be the only specialty that will encompass health care oriented around all the major events of the family — marriage, birth, infancy, childhood, adolescence, adulthood, aging, trauma, illness and death."

For a one or two-year period of continuation study, the Commission on Education suggests the following hourly assignments for a fifty-hour review covering skills, techniques and procedures of the traditional specialties: *Internal Medicine*, 15 hours; *Surgery* and Ob-gyn, 10 hours; *Pediatrics*, 7 or 8 hours; *Psychiatry and Behavioral Sciences*, 8 or 7 hours; *Preventive Medicine*, 5 hours; and *Practice, Economics of Health Services*, et cetera, 5 hours."

"You should have some familiarity with the modern concept of the behavioral sciences, the cornerstones of which are anthropology, sociology, psychology and economics. The application of the behavioral sciences to medicine concerns the inter-reaction (behavior) of the patient, his family, and the physician."

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## EDITORIAL COMMENT

Continued from Page 55

most authors have agreed upon the necessity of using a set of standardized neurological examinations in repeatedly judging patient response.[1,2] In addition, most agree that a double blind study is probably necessary so that physician enthusiasm will not in itself play a role in apparent patient improvement.

Elsewhere in this issue there is a contribution describing a diet to be used in the treatment of multiple sclerosis. The reader may wish to consider it in view of the above remarks, thus appreciating the difficulties which arise in evaluating any clinical study of this disease.

C. L. R., III

REFERENCES

1. Kurtzke, J. F.: On the Evaluation of Disability in Multiple Sclerosis. Neurology 11:686-694, 1961.
2. Tourtellotte, W. W., et al: Quantitative Clinical Neurological Testing, I. A study of a Battery of Tests Designed to Evaluate in part the Neurological Function of Patients with Multiple Sclerosis and its use in a Therapeutic Trial. Ann. N. Y. Acad. of Sciences: 122:480-505, 1965.

# In Brief

**Milford Seminars**

These seminars will be held at the Milford Memorial Hospital from noon to 1 p.m., on the second and third Tuesdays of each month.

Mar. 12, 1968, Edward Benz, R.N., *The Potential of Specialty Nursing.* This discussion will center around the responsibilities and delegation of treatment to nurses who will be in charge of the patient care in the specialty areas of cardiac care and intensive care.

Mar. 19, 1968, J. A. Arminio, M.D., *First Aid in Trauma to the Hand.* An outline of the steps to be taken by any practitioner who might be on the scene of a traumatic injury to the hand, as to what steps should be taken to insure the most adequate future function of this hand.

**Radio Seminars**

The Pennsylvania Hospital announces Radio Seminars, Medical Continuation Education by FM radio as follows:

Mar. 5, 7; *Psychodelics*, Donald J. Gill, M.D., Director of Medical Education, Pennsylvania Hospital Community Mental Health Center.

Mar. 12, 14; *Latent Coronary Disease—Diagnosis*, Charles S. Ryan, M.D., Medical Director, Sun Oil Company.

Mar. 19, 21; *The Coronary Care Unit*, John Helwig, Jr., M.D., Chief of Cardiology, Germantown Hospital.

Mar. 26, 18; *Upper Gastro-Intestinal Hemorrhage*, Norman M. Cohen, M.D., Associate in Medicine, Hospital of the University of Pennsylvania, Attending Physician, Misericordia Hospital; Consultant in Gastro-Enterology to Veteran's Hospital, Jeanes Hospital, Chestnut Hill Hospital.

**Speakers On "Ask the Doctor"**

Speakers for March, 1968, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Mar. 5, David A. Livitsky, M.D., *Congenital Heart Disease;* Mar. 12, Dietrich Kroll, M.D., *Prenatal Care;* Mar. 19, Charles L. Miller, M.D., *Poison Prevention;* Mar. 26, Marvin Dorph, M.D., *Doctor-Patient Relationship.*

**Personal Glimpses**

Ruben Teixido, M.D., addressed the American Association of University Women last month in the Student Center, University of Delaware. Dr. Teixido, a native of Paraguay, spoke on the growing gap between the rich and poor nations of the world caused by their many differences due to ineffective communication . . . David J. Reinhardt, III, M.D., spoke to the Delaware Association of Medical Assistants (New Castle County Chapter) in the doctor's conference of the Memorial Division, Wilmington Medical Center, and presented a film and discussion entitled, *Prescription for Life* . . . Allston J. Morris, M.D., delivered a talk on *Stroke* to the Wilmington Torch Club in February.

**TB Chief Retires**

Frank F. Pierson, Jr., retired February 15 as Executive Secretary of the Delaware Tuberculosis and Health Society. Mr. Pierson worked 15 years for the Society in various posts and was instrumental in the tuberculosis-control program among migrant workers in Delaware. He has been associated with the mobile x-ray unit program in Delaware working with the State Board of Health in scheduling visits to offices, plants and shopping areas where free chest x-rays could be offered to the public and was one of the founders of the Inter-Agency Council for Smoking and Health.

Following his retirement Mr. Pierson plans to enjoy working with old books and antiques, two of his hobbies.

**Seventh Delaware Meeting—ACP**

At this Seventh Delaware Meeting, held Saturday, February 24, 1968, at the Delaware Academy of Medicine, Wilmington, many Delaware physicians were featured in the program. A. Henry Clagett, Jr., F.A.C.P., Governor for Delaware, presided at the meeting; Herbert M. Baganz, Jr., F.A.C.P., chaired the morning session; Robert W. Frelick, F.A.C.P., chaired the afternoon session. Delaware doctors among the speakers included: Joseph F. Treon, Ph.D., (Atlas Chemical Industries) *Preclinical Safety Testing of Drugs in Animals as Illustrated by Isosorbide, A New Oral Osmotic;* Harold H. Orvis, M.D., and Kazuo K. Kimura, M.D., (Research, Altas Chemical Company) Isosorbide (Hydronol)—*An Orally Effective Osmotic Diuretic;* Bernadine Z. Paulshock, M.D., *Diabetes in Pregnancy;* James M. Hofford, M.D., *Pulmonary Function Studies in Lipid Pneumonia;* Drs. Leo B. Hogan, William J. Holloway, and E. G. Scott, M.S., *Clinical Experience with Hetacillin;* and Edgar R. Miller, F.A.C.P., *Modern Concepts of Leprosy.*

## CLINICAL MEETINGS AND NOTICES

**P. G. Course**

The Department of Otolaryngology of the Illinois Eye and Ear Infirmary and the College of Medicine of the University of Illinois will conduct a postgraduate course in laryngology and bronchoesophagology March 25-April 6, 1968. This course is limited to fifteen physicians. It will include visits to a number of Chicago hospitals, instruction will be provided by means of animal demonstrations. Write to the Department of Otolaryngology, College of Medicine, University of Illinois, P. O. Box 6998, Chicago, Illinois 60680.

**Youth and Drug Addiction**

A two-day conference on the abuse of drugs by young people will be sponsored by the Council on Mental Health of the AMA March 15-16 at the Drake Hotel in Chicago. Physicians interested in attending may write to the Department of Mental Health, AMA, 535 No. Dearborn St., Chicago, Ill., 60610. There is no registration fee.

**Heart Association Meeting**

The Seventh National Symposium of the Southeastern Pennsylvania Heart Association will be held in the Sheraton Hotel, Philadelphia, March 14-15, 1968. Those attending will pay their own hotel and travel expenses but the registration fee will be waived. It will be a two-day symposium on *Neurohumoral Control of the Circulatory System.*

**Heart Association of Northern Virginia, Inc.**

A Joint Cardiac Symposium by the Heart Association of Northern Virginia, Inc., and Washington Heart Association will be held at the Marriott Twin Bridges Motor Hotel, on US No. 1, Washington, D. C., in the Persian Room on Wednesday, April 10, 1968.

**American College of Physicians**

The ACP presents *Current Concepts in Physiology of Respiration, Circulation and Electrolyte Metabolism* on March 28-30, 1968, at the Princess Ballroom, Somerset Hotel, 400 Commonwealth Avenue, Boston, Mass.

**American Academy of Pediatrics**

The annual spring session of the American Academy of Pediatrics will be held March 18-20 in Atlanta, Georgia, in the Regency Hyatt House. The scientific program will provide sessions and present such subjects as the current status of virus cancer relationships, the diagnosis and management of the child who is too short or too tall, the obese child, advances in therapeutics, current status of radioisotope scanning in children, and recent advances in the diagnosis of cystic fibrosis.

**Academy of Medicine**

At the dinner meeting preceding the third annual lecture of the Academy of Medicine on Jan. 31, 1968, Dr. Lewis B. Flinn, one of the 12 original founders of the Academy was honored.

Dr. Flinn recounted the interesting history of the Academy which began with the relocation and reconstruction of the original Bank of Delaware building which dates back to 1815 at its present site on Lovering Avenue. Along with Dr. Flinn, Drs. Morris Pierson and S. C. Wagner were among the original twelve founders of the Academy of Medicine.

**New Services**

A booklet describing the services of the Department of Public Welfare, State of Delaware, including the Public Assistance, Child Welfare, and Medical Assistance programs is available from the D.P.W. offices in Kent, New Castle and Sussex counties.

## NATIONAL CONFERENCE ON MEDICAL COSTS

The recent National Conference on Medical Costs was called by the President of the United States "to discuss how to lower the costs of medical services without impairing the quality." If there was a consensus among the 300 participants, it was that costs would not be reduced, and many felt that quality would deteriorate as efforts are made to distribute the available health manpower more evenly among the entire population.

A simple solution to the problem did not develop, but conference leaders stressed that change is inevitable and that new patterns of medical practice will evolve. Throughout the two-day meeting there was a preconceived undercurrent of support for remuneration of physicians on a retainer basis in comprehensive prepayment group practice plans.

The heart of the problem of rising medical expenses lies with hospital costs and not with physicians' charges or drug prices.

The conferees urged the prompt development of a reimbursement formula which would serve as an incentive to more economical and efficient delivery of quality services in hospitals. There was, however, rejection of the likelihood of substantial success in reducing hospital costs.

All agreed that the availability of high quality drugs at reasonable prices is desirable, but as expected, the question of the comparative quality of trade name and generic products was not resolved.

The need for a reorganization of health services and for more efficient utilization of existing manpower was stressed. Glaring prototypes referred to were eye refractions and the ophthalmologist, well-baby care and the pediatrician, and the inefficient periodic health examination and the internist. The concept of a highly productive health team headed by a physician and employing physicians' assistants was favorably received.

It was recognized that the maldistribution of physicians is primarily due to the economic, social and cultural disadvantages of some geographic regions. These areas would probably not be adequately served even with improvement in the national physician-patient ratio.

There was sober realization that the national goal of first-class medical care for everyone is impossible of attainment in the foreseeable future. Although the conference did not come up with specific recommendations for reducing costs or improving the supply and quality of medical care, the push is on for more efficient use of available resources. The medical profession must recognize its responsibility to lead the way or someone else, probably the government, will take over.

Additional conferences on various aspects of the health cost-quality problem are scheduled for the early fall.

As Secretary Gardner said, it is for the med- practices and to search for new and better and less expensive ways of satisfying the public's increasing demand for health services. *The Internist*, September 1967.

# Auxiliary Affairs

### PROFILE OF THE STATE PRESIDENT,

### WOMAN'S AUXILIARY

### MRS. HAROLD J. LAGGNER

Mrs. Betty Riggin Laggner, President of the Women's Auxiliary of the Medical Society of Delaware, has a history of many past services to her community.

Betty is a native Delawarean, having been born in Laurel. At a very early age, Betty moved with her family to Maryland where most of her youth was spent. She graduated from Mardella Springs High School, Maryland.

Betty attended the School of Nursing at Jefferson Medical College, Philadelphia. While there, Betty met her husband, Harold, who was also attending Jefferson Medical School. Upon graduation, Betty served as a suture nurse and office nurse for Dr. Brooke Anspach, at both Bryn Mawr and Jefferson Hospitals.

Betty and Harold were married in 1945, upon completion of Harold's medical training. Following their marriage, Betty worked as a private secretary while Harold served in the Armed Services, overseas.

In 1948, Harold was discharged from the Service, and the Laggners returned to Smyrna, where Harold established his practice, and Betty set about the task of mothering and raising three children, and assuming her manifold role in the community. Numbered among her past accomplishments are: den mother; Brownie troop leader; past secretary to the Blessed Virgin Sodality of St. Polycarjis Church; and many other church chairmanships.

Offices that Betty has held in the Medical Society Auxiliary, both on the county level and on the state level, far outnumber any other activities. These include the following: Secretary-Treasurer, and President of the Kent County Medical Society; State Treasurer for five years; Parliamentarian; Recording Secretary; and Director for two years in the State Medical Society. Presently Betty is serving as Vice-President of the Woman's Auxiliary to the Delaware Home and Hospital for the chronically ill at Smyrna, in addition to her position as President of the Woman's Auxiliary to the Medical Society of Delaware.

As for Betty's family, her children are pursuing their educations at various schools. Rosanne, their only daughter, is a sophomore at the University of Delaware. Brook is a sophomore at La Salle Military Academy, Oakdale, N. Y., and David attends Brookmeadow Day School, Middletown.

When there is time, Betty enjoys pursuing her hobby, which if you ask her, she will say is, "Bridge, Bridge, Bridge, and skiing in season."

Delaware is indeed fortunate to have such a gracious, well-qualified, and charming lady to serve as its representative and President.

### RECOMMENDED READING

"It is clear that organized study of the area of the family and mental illness is in a state of chaos." From the book, *Neurosis in the Ordinary Family,* a psychiatric survey by Anthony Ryle, D.M., a new acquisition by the library of the Academy of Medicine.

Another new acquisition is, *The Psychiatric Dilemma of Adolescence* by James F. Masterson, Jr., M.D.

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NUMBER 3

# TITLE XIX IN DELAWARE

A. Roke Lieberman

Delaware's Department of Public Welfare Federal-State Program of Medical Assistance, authorized under Title XIX of the Social Security Act, has become known in Delaware, as elsewhere, by the title *Medicaid*. This is a summary of Medicaid in Delaware (Title XIX).

Title XIX seeks to do for children and adults in low income families what Medicare does for all people 65 years of age or over. Medicaid, by law, includes in its Medical Assistance Programs all recipients of federally aided public assistance — the aged, blind and disabled, and families with dependent children.

In addition to all eligible Department of Public Welfare recipients who receive a monthly cash grant, Delaware's Medicaid Program includes comparable groups of medically needy people (the aged, blind and disabled, and families with dependent children) who have enough income for daily living but not for medical expenses, and who, except for income and resources, would meet Delaware's eligibility requirements for public assistance.

The following categories of assistance are matched financially by the federal government:

1. Aid to Families with Dependent Children; known as AFDC
2. Old Age Assistance — persons 65 years or over; known as OAA
3. Aid to the Permanently and Totally Disabled; known as APTD
4. Aid to the Blind; known as AB.

All persons eligible for the above federally matched assistance receive a monthly cash grant in the form of a check with an attached check stub which identifies the person as eligible for medical assistance. In addition to the above persons, Medicaid in Delaware also includes all those children of whom the Department of Public Welfare has legal custody and who have been placed by the Department in authorized foster homes.

Our Medicaid program does not include all categories of people who are eligible for public assistance grants. Those persons between the ages of 21 and 64 inclusive who do not qualify for one of the federally matched categories, are not eligible for medical assistance. If these persons are not 65 years of age or over, are not permanently and totally disabled, are not blind, or do not qualify for aid to families with dependent children because of incapacitation of the parent, then they are not eligible for medical assistance. *Example*: A man in his forties with three children at home who has been laid off and is therefore on general assistance through the Department of Public Welfare until he is able to secure employment, is not eligible for medical assistance to cover expenses for illness of his wife or children even though he is eligible for a cash grant for daily non-medical needs.

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Mr. Lieberman is Chief, Medical Services, Department of Public Welfare, State of Delaware.

Delaware is not precluded from including these persons by additional legislation whenever it shall desire to do so but must provide the necessary funds without any federal financial participation.

As mentioned previously, there is a group who is eligible for medical assistance financed equally by the state of Delaware and the federal government who would qualify for one of the federal categories except that they have sufficient funds and income for their daily needs but not for medical expenses. This group gets medical care only but does not get a cash monthly grant. The following chart sets forth standards within which limits a person or family may be eligible for this medical-assistance-only under Delaware's federal-state (Title XIX) program of medical assistance.

All persons within the chart limits and who, except for the income and resources, would meet Delaware's eligibility requirements for public assistance, are certified as eligible for medical assistance for a period of six months after which recertification that medical need still persists is necessary. A medical service card is then issued to these people and should be presented by the patient whenever medical services are requested. Medical need must exist at the time the person applies for medical assistance under the medically indigent portion of Delaware's Title XIX Medicaid Program. At the present time the program includes the following services: Inpatient hospitalization, outpatient hospital care, physicians' services, x-ray and laboratory, extended care services and prescribed drugs. Dentistry, podiatry and routine eye refractions are not included.

It is obvious that determination of a particular individual's eligibility for financial aid under Title XIX is complicated. Whenever it is desired to determine specific eligibility, the person involved should write or call the following locations:

*Kent County*, Old Agricultural Building, Court Street, P.O. Box 795, Dover, Delaware 19901; Phone, 734-7551.

*New Castle County*, 28th and Governor Printz Blvd., P.O. Box 309, Wilmington, Delaware 19899; Phone, 764-8180.

*Sussex County*, Intersection of Routes 113 & 431, R.D. 1, P.O. Box 31-W, Georgetown, Delaware 19947; Phone, 856-2564.

These offices will help the person in question determine whether he falls within the present established categories for aid.

Financial Criteria for Eligibility for Medical Assistance Only

| No. of Persons | Available Annual Net Income | Income Exemptions Health Insurance Premiums | Personal Resources | Insurance Policy Surrender Value |
|---|---|---|---|---|
| 1 | $1,500.00 | $ 150.00 | $ 600.00 | $ 500.00 |
| 2 | 2,100.00 | 250.00 | 900.00 | 1,000.00 |
| 3 | 2,700.00 | 350.00 | 1,000.00 | 1,000.00 |
| 4 | 3,300.00 | 350.00 | 1,100.00 | 1,000.00 |
| 5 | 3,800.00 | 350.00 | 1,200.00 | 1,000.00 |
| 6 | 4,300.00 | 350.00 | 1,300.00 | 1,000.00 |
| 7 | 4,800.00 | 350.00 | 1,400.00 | 1,000.00 |
| 8 | 5,200.00 | 350.00 | 1,500.00 | 1,000.00 |
| 9 | 5,600.00 | 350.00 | 1,600.00 | 1,000.00 |
| 10 | 6,000.00 | 350.00 | 1,700.00 | 1,000.00 |
| 11 or more | Add $200 per person | 350.00 | $100 assets per dependent per year additional | 1,000.00 |

# THE USE OF DEXTRO-THYROXINE (CHOLOXIN) IN CARDIOVASCULAR DISEASE

## Report of a Clinical Study

David J. Reinhardt, III, M.D.

The use and effectiveness of dextro-thyroxine* as an agent for reduction of serum lipids, particularly cholesterol, has been amply documented in several hundred publications since 1961.[1] This report summarizes my experience in the use of dextro-thyroxine in a group of 198 out-patients during a period of six and one-half years.

Dextro-thyroxine* (hereinafter referred to as d-THRX) is the dextro-rotatory isomer of thyroxine. It has been found to have a very low level of metabolic activity compared to the levo-rotary isomer, the difference in activity being approximately 1:20 to 1:40. It has the same actions in the liver which consist both of an increase in the production of cholesterol and, to a greater extent, in the catabolism of cholesterol with the end-products being excreted by the biliary tract in the form of bile salts.[2]

According to the Framingham study,[3] blood cholesterol levels are statistically related to the incidence of atherosclerotic or coronary heart disease. This is, of course, only one of the many factors both known and unknown related to this epidemic disease which causes more than a half a million deaths yearly in this country.[4]

Among the male population between 40 and 60 years of age coronary heart disease is the leading cause of death. This group is in its greatest productive period and the resulting economic loss to each individual's family as well as to the national economy is incalculable.

It is therefore an urgent, major obligation of the medical profession to attack the problem of coronary heart disease and atherosclerosis in every possible manner. One such manner may be the reduction of serum cholesterol levels with d-THRX.

### Patient Selection

The patients were chosen only after a thorough history and physical examination followed by laboratory studies which included a complete blood count, hematocrit, urinalysis, sedimentation rate, blood sugar, blood urea nitrogen, alkaline phosphatase, uric acid, protein bound iodine and cholesterol. Early in the study total lipids, phospholipids and triglycerides were also evaluated. However, due to the lack of useful additional data thereby obtained and the expense of these tests they were discontinued as a routine measure. Chest x-rays were usually taken and cardiac fluoroscopy was occasionally done. A resting 14-lead electrocardiogram was done in every case. Nearly all men and a few women had a double Master's exercise tolerance test before therapy and many had the test repeated during therapy with d-THRX.

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Dr. Reinhardt is Senior Physician, Department of Medicine, Cardiology Section, Wilmington Medical Center, and Cardiac Consultant to the Beebe Hospital.

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*Dextro-thyroxine supplied as "Choloxin" by Flint Laboratories.

The decision to include each patient in the study was made only when a diagnosis had been established of previous myocardial infarction, angina pectoris, hypertensive cardiovascular disease, hypercholesterolemia, hyperlipemia, cerebrovascular disease, or peripheral vascular disease, or if the individual fulfilled the criteria for the classification of being "coronary prone."[5]

Coronary heart disease was considered present if the patient had a positive double Master's exercise test, typical angina pectoris or had a history or electrocardiographic evidence of old myocardial infarction.

Cerebrovascular disease was considered present if retinal artery arteriosclerosis was of Grade II intensity or more, a documented cerebrovascular accident had occurred in the past (no patient was treated less than eight weeks past the acute episode), or if consultation with a neurologist indicated that cerebrovascular insufficiency was present.

The diagnosis of peripheral vascular disease was based on the inequality of the femoral pulses, the presence of intermittent claudication, the absence of pedal pulses, or the occurrence of frequent, severe nocturnal leg cramps.

Many patients fitted more than one category. Additional patient requisites for inclusion in the study were emotional stability and confidence regarding the patients' follow-up cooperation.

### Observations

A total of 198 patients (129 men and 69 women) were treated with d-THRX. The age span was from 30 to 90 years. The average woman's age was 63.4 years and the man's, 54.1 years.

Time on therapy varied. One hundred and twenty-five patients took the investigational drug for periods of 12 to 81 months. The average therapy time of this group was 32.3 months.

The dosage was also varied. Most patients started at 4 mg daily. Many, however, were started at lower doses of 1 or 2 mg per day. The lower dosage was considered essential in those patients with angina pectoris, hypothyroidism or congestive heart failure. The usual maintenance dosage was 4 to 8 mg daily. A few patients received higher doses of 12 to 16 mg and one received 20 mg daily. When 8 mg per day was exceeded signs of hypermetabolism often became evident. Tachycardia, aggravation or development of angina pectoris, or an increase in frequency of stools were the earliest signs of a hypermetabolic state.

**Table I Pre-treatment Diagnoses**

| Diagnosis | Total Number |
|---|---|
| Angina Pectoris | 79 |
| Myocardial Infarction (old) | 53 |
| Thyroid Disease | 15 |
| Anticoagulants | 19 |
| Hypertensive Cardiovascular Disease | 72 |
| Congestive Heart Failure | 29 |
| Arrhythmias | 20 |
| Cerebrovascular Disease | 26 |
| Diabetes Mellitus | 33 |
| Peripheral Vascular Disease | 109 |
| Leriche Syndrome | 22 |
| Hypercholesterolmia and/or Hyperlipemia | 176 |
| "Coronary Prone" | 128 |

All of the group were under full standard treatment for their medical problems before starting on d-THRX. Therefore most patients were following low in saturated fat, weight reduction, low salt, or diabetic diets prior to starting therapy with the investigational drug. Antihypertensive agents, antidiabetic agents, digitalis products, long acting nitrates, peripheral vasodilators, triparanol and occasionally nicotinic acid were already being taken. In some instances various thyroid replacement products were used but stopped when d-THRX was instituted.

### Angina Pectoris

This condition proved the most difficult problem to deal with when initiating therapy and it was in these patients that the lowest starting dose was imperative. A dosage of 1 mg daily was instituted and increased monthly by 1 mg until an effective dose of 4 to 6 mg per day was reached. With this program none of the 79 patients had to discontinue therapy.

After reaching the effective dosage level and continuing therapy, seven patients had an increased frequency of angina pectoris. A total of 45 patients noted a reduction of frequency of anginal attacks. Eleven patients noted no change either way and 16 patients were inadequately evaluated or lost to follow-up.

### Myocardial Infarction

This group (53 patients) tolerated d-THRX well. Seventeen developed acute myocardial infarctions while on therapy; eight of these had a prior history of infarction. Of the 17, three died of their infarctions, a mortality less than expected by my previous experience with patients with myocardial infarction.

### Thyroid Abnormalities

Hypothyroidism was present in 15 patients, 11 of whom had a goiter. In each instance the goiter reduced in size, returning to normal in five patients. Most patients were adequately controlled at 4 mg per day but several required 6 or 8 mg per day. Compared to other thyroid supplements, this drug was outstanding for hypothyroid patients who also had angina pectoris.

Dextro-thyroxine was used in four thyrotoxic patients under antithyroid therapy for symptoms of excessive skin dryness, exophthalmos, or symptomatic thyroid enlargement. In each instance a satisfactory response occurred.

### Anticoagulants (Coumarin Derivatives)

Nineteen patients who were taking d-THRX received anticoagulants on a long-term (more than one month) basis. Because of the known effect of d-THRX in increasing sensitivity to anticoagulants, the drug was started in only four patients already receiving anticoagulants.

In these four patients anticoagulant dosage was initially reduced by half then increased as indicated by prothrombin time tests. In each patient, within six weeks of initiation of d-THRX, a return to previous anticoagulant dosage level was made.

### Hypertension

Seventy-two patients with hypertension were started on d-THRX. There was no aggravation of the hypertension. In about half the diastolic blood pressure dropped 5 to 10 mm Hg.

Non-hypertensive patients occasionally showed a 10 mm increase in systolic pressure but usually also a slight reduction of diastolic pressure. These changes were probably a reflection of the metabolic effect of the drug.

### Congestive Heart Failure

Twenty-nine patients with congestive heart failure were treated; the dosage being kept low in order not to aggravate the degree of failure. Only when the dosage of 4 mg daily was exceeded did this occur.

### Arrhythmias

Twenty patients with arrhythmias were treated with d-THRX. This group of patients was deliberately kept small because of the possibility of aggravating the arrhythmia or precipitating ventricular fibrillation. Most of this group had premature ventricular contractions and a few had auricular fibrillation. The dosage was limited to 4 mg per day. There appeared to be no effect on auricular fibrillation, and there was no aggravation of ventricular irritability which in several cases was reduced while taking the drug.

It was noted in most of the study group that a slight slowing of the pulse occurred at 4 to 8 mgs per day. The mechanism of this is not clear unless it is explained by a greater suppression of thyrotropic hormone secretion with resultant reduction in normal thyroid hormone, thus producing a mild “relative” hypothyroid state.

This theory might also explain the often seen reduction of frequency of bowel movements in 38 patients. At doses greater than 8 mgs per day an increase in pulse rate and in bowel function was commonly noted.

### Cerebrovascular Disease

Twenty-six patients with cerebrovascular disease were treated with d-THRX. The majority had suffered a cerebral thrombosis which was stable at inception of therapy. Eight patients had insufficiency of the cerebral blood supply with either the vertebral, carotid or basilar artery being affected.

Of the 26 patients treated, 16 were felt to be definitely improved. Ten showed no change and none were worsened by d-THRX. Those that improved showed some evidence of improvement by eight weeks of therapy. In a few patients, all of whom had been on a plateau for many months prior to being given the drug, the degree of improvement was marked and no other reason for the improvement could be found. It would be most interesting to do cerebral blood flow studies before and after therapy.

### Diabetes Mellitus

Thirty-three patients with diabetes were given d-THRX. At a dose level of 4 mg per day there was no aggravation of the diabetic state. Higher dose levels of 8, 12 or 16 mg per day caused increase in the anti-diabetic requirements.

Six non-diabetic patients developed diabetes mellitus during prolonged therapy and the diabetes persisted in each despite discontinuation of d-THRX therapy. When therapy was resumed, the diabetic state was not worsened. This number of new diabetics in this size group of older patients is, in my opinion, not significant.

### Biliary Calculi

Six patients (five women, one man) developed calculous cholecystitis requiring cholecystectomy. It is not known if the increased catabolic action of the drug on the blood cholesterol with a resulting increase in bile salts was a factor. A number of this type of patient could be expected to develop this condition over this prolonged period of observation.

### Cholesterol Levels

Although it was not the purpose of this study to document further the several hundred published reports on the effectiveness of reducing blood cholesterol levels, over 90% of patients had a reduction of cholesterol varying from 5 to 50% after 4 to 8 weeks of therapy at a dosage of 4 mg or more per day of d-THRX. The reduction averaged 15% for the entire group and the higher dosage levels were even more effective.

Triglycerides were little or not affected. Total lipids and phospholipids showed reductions of equal magnitude to the cholesterol reduction.

### Peripheral Vascular Disease

This condition was present in a large portion of the group. There seemed to be a definite improvement in symptoms after 8 to 12 weeks of 4 to 8 mg per day of d-THRX. A definite increase of walking tolerance was noted in nearly every patient. A Leriche syndrome as diagnosed by inequality of the femoral pulses was present in 22 patients. Ten of these returned to full normal ambulatory activity without other therapy. The over-all group while under therapy did not deteriorate. All of the above 10 patients had improvement of the weakened pulse. This is, of course, subjective observation and thus may be of questionable significance.

### Master Tests

Double Master's exercise tests were performed in nearly all male patients before therapy and were repeated in a majority after continuing the d-THRX for more than 12 months. Generally, there was no worsening of the post-exercise tracings unless the dose was 12 mg or more per day. Post-therapy, about 20% showed improvement in their post-exercise tracing. This was encouraging from the standpoint of safety to the patient at moderate dose levels.

### Adverse Reactions

These include drug effects which were unexpected and particularly undesirable. Iodism occurred in one patient. Three patients, all women, developed alopecia. One patient had loss of eye lashes. Two patients attributed complete loss of libido to d-THRX therapy. Six patients (two of whom had Leriche Syndrome) believed their libido was increased. One patient developed gynecomastia. No dose relationship was noted in any of these reactions.

| | | |
|---|---|---|
| a. | Constipation | 34 |
| b. | Aggravation of Angina Pectoris | 7 |
| c. | Alopecia | 3 |
| d. | Loss of eyelashes | 1 |
| e. | Iodism | 1 |
| f. | Interference with anticoagulation | none |
| g. | Mortality from d-THRX | none |

## Discussion

Dextro-thyroxine is an interesting drug that produced some beneficial actions not expected prior to this study. The reduction of symptoms and signs of cerebrovascular, peripheral vascular and coronary artery disease was impressive. The reasons for these improvements are not clear but it seems unlikely that the reduction of blood cholesterol alone could be responsible. It is more likely that some vasodilatation of smaller arteries occurred or stimulation of collateral channels became functional. Further work to understand the full action of d-THRX is certainly indicated.

The analysis of a large group of patients when studied by a single individual is at best very difficult.

It is my impression that this study showed d-THRX to be a relatively safe and effective agent for treatment of atherosclerosis and its complications.

This clinical investigative project was authorized by the Food and Drug Administration and many of the conditions treated are not yet approved for d-THRX therapy by the FDA. At the present time, only those conditions recommended by the "package insert" may be treated with d-THRX.

The new project being undertaken by the National Institute of Health involving d-THRX and two other lipid-reducing agents will be statistically controlled and double-blind in nature. The most important question to be answered is whether or not blood lipid reduction will improve longevity and reduce atherosclerotic complications. Another important question is which of these agents is safest and most successful in the control of blood lipids. It must also be determined whether a combination of these agents might be more valuable and safe than any one alone. It will be several years before this study is completed and analyzed. In the meantime each physician must decide for himself whether or not the control of blood lipids now is important to his patient.

## Summary

A clinical study of dextro-thyroxine (Choloxin) over a six-and-a-half-year period in 198 patients suffering from various types and degrees of arteriosclerotic and atherosclerotic cardiovascular disease is described.

From this study, the following observations can be made:

1. When used in recommended doses, there is a high degree of safety.
2. A significant degree of cholesterol reduction has been confirmed.
3. There is suggestive evidence that cerebrovascular disease symptoms are lessened, but further work is needed to clarify and confirm this observation.
4. Improvement in symptoms of peripheral vascular disease was impressive, but the evidence is subjective only.
5. Prolonged therapy was well tolerated and beneficial in the uncomplicated hypercholesterolemic patient.
6. Angina pectoris, though difficult to treat, seemed to show some improvement on long term therapy.
7. The drug should not be used in ventricular arrhythmias because the threshold may be lowered for ventricular fibrillation.
8. The drug should not be used in recent myocardial infarction.
9. Caution is recommended when the patient is taking coumarin-type anticoagulants.
10. The impression was gained that d-THRX offers an additional approach to treatment of a disease process which can be considered to be epidemic in this country.

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# CPC Wilmington Medical Center

## G.I. Bleeding, Abnormal Pulmonary X-rays, and Gangrene of All Four Extremeties in a Fifty-Five-Year-Old Man.

Leonard P. Lang, M.D., *Editor**

### Presentation of Case

*First Admission.* This patient was a 55-year-old man who entered the hospital for the first time on October 28, 1965. On the day before admission, he had vomited about a pint of dark brown bloody material. This was repeated on the day of admission. One dark stool had been passed. He did not complain of abdominal pain, but stated that he felt weak. He had been seen in a physician's office several days before because of pedal edema, which had been present for about five weeks; this was not associated with dyspnea. He was a heavy cigarette smoker (1-1½ packs daily) and had had a chronic cough for many years. During the month before admission, his appetite had decreased and he estimated a weight loss of thirteen pounds in the preceding year.

His past history was marked by long-standing peptic ulcer disease. In 1944, he had a perforation of an ulcer which was closed without resection. A sub-total gastrectomy was done in 1954, but he continued to have symptoms for which he took Pro-Banthine and four to five teaspoonsful of baking soda daily. Other than the above and an episode of scarlet fever at age 30, he had no major surgical or medical illnesses.

The patient weighed 167 lbs. He was normotensive. The skin is described as being tinted a gray-blue due to argyria. This was apparently due to prolonged use of Argyrol as a throat paint. Eyegrounds showed Grade I Keith-Wagener changes. The neck veins were not distended. The lung fields were clear to percussion and auscultation. The heart was in normal sinus rhythm and no murmurs were recorded. There were multiple epigastric scars and he was slightly tender to palpation over the epigastrium. There was two plus edema of the lower extremities. The right dorsalis pedis pulse was not felt but all other peripheral pulses were normal. There was tenderness in the right calf and along the right saphenous vein. A positive Homan's sign was present on the right. The prostate gland was normal.

On admission the hematocrit was 37.8%, RBC's were 3.71 million and hemoglobin 13.0 gm. WBC's were 14,209 with 68% neutrophils, 7% band forms, 20% lymphocytes, 3% monocytes and 2% eosinophils. A repeat RBC on the second day was 3.48 million and hemoglobin 10.3 gm. This was further reduced on the third day to 9.1 gm with a hematocrit of 27.0%. On the next day (4th) the hemoglobin was stabilized at 8.9 gm with hematocrit of 27.5%. One unit of packed cells was administered on this day and a G.I. series performed. This was interpreted as showing a functioning gastroenterostomy without any definite ulcer crater being visible. There were two or three collections of barium on the jejunal side which may have represented walled-off perforations. A chest x-ray was reported as showing pulmonary fibrosis in the right upper third. An ECG on the 2nd hospital day showed a rate of 92 with P-R interval of 0.16 seconds. There was slight T wave inversion in leads 3 and aVf.

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*Senior Physician, Department of Medicine, Wilmington Medical Center

His course in the hospital was marked by complaints of pain in his right leg, recurring episodes of epigastric distress and chest pain. He exhibited a determined spirit of uncooperativeness but in spite of this a myriad of studies were carried out. A questionable mass was felt in the epigastrium and a liver scan and liver biopsy were done. The scan was interpreted as showing an enlarged liver with irregular patchy uptake; however, the biopsy showed normal liver tissue.

On the 14th hospital day, an x-ray of the chest described a new lesion of the right base posteriorly. A femoral venogram done the same day failed to show definite evidence of thrombosis. On the 21st day there were physical findings suggestive of a pleural effusion on the left. This was confirmed by an x-ray which also showed involvement of the lingular segment of the left upper lobe and the posterior segment of the left lower lobe. On the 22nd day, a lung scan showed a round defect in the medial portion of the lung which was thought to represent a lung cyst. On the 24th day, a thoracentesis was done with removal of 1,200 cc of a serosanguineous fluid. This contained many RBC's, 3,000 WBC/cu mm with 45% neutrophils, 48% lymphocytes and 7% eosinophils. The specific gravity was 1.018, the protein 4.1 gm%, the LDH 280 units and the sugar 109 mgs%. A culture showed no growth and no malignant cells were seen. On the 28th day, upon sitting up, he developed an episode of severe coughing, became cyanotic and had a convulsion. A thoracentesis was repeated that evening and 390 cc of bloody fluid was removed with some improvement in his condition. An electrocardiogram was interpreted as showing changes from the last previous tracing in that the T waves were lower in the left chest leads; however, there was nothing to suggest an acute myocardial infarction. A subsequent thoracentesis on the 30th day again produced 200-300 cc of sanguineous fluid and two days later 50 mc of 198-Au colloid was instilled in the left pleural space. Anticoagulant therapy was started on the 28th hospital day with repository heparin and continued until the 42nd day, when Coumadin was introduced. An electrocardiogram on the 36th hospital day showed deeply inverted T waves in the chest leads. He remained weak and anxious through the 48th day, and then improved in that he had less dyspnea and heart sounds were improved. It was noted on that day that the left leg was swollen but the right had returned to normal.

The patient was febrile on admission and continued to have a low grade temperature elevation through the first days of hospitalization. From the 11th to the 14th days, temperature reached 102 F, subsided to its previous level of 100 F, rose again on the 19th day and reached 103 F on the 21st day. A low grade elevation (101 F) continued through the 33rd day, after which it was normal until the 40th day, when a spike of 102.6 F occurred. A single spike occurred on the day of discharge.

Treatment initially consisted of anti-spasmodics and sedation. Chloramphenicol 500 mgs four times a day, and oxacillin 1 gm four times a day were both started on the 21st hospital day. The chloramphenicol was discontinued on the 30th day and the oxacillin on the 33rd day. Ampicillin 500 mgms four times a day, was given from the 43rd until the day of discharge (54th day).

Sputum cultures grew out a variety of organisms, ie, aerobacter, E. coli, and enterococcus species. Four blood cultures failed to yield growth. He was discharged taking digitalis, a diuretic, and an anti-coagulant.

*Second Admission.* He was readmitted (9 months later) because of sudden pain in the thumb, first and second fingers of the right hand of approximately one week duration. At the time of admission, there was advanced gangrene of the distal part of the right index finger, beginning gangrene at the tip of the middle finger, and redness and tenderness of the right thumb. The radial and ulnar vessels could not be felt on the right side at the wrist, but the radial could be felt several inches above the wrist. Multiple segmental clots were present in the superficial veins of all four extremities.

A chest x-ray showed further extension of the right sided lesion with mediastinal extension. RBC's were 2.73 million and hemoglobin 6.7 gm, WBC's were 8,274 with 75% neutrophils, 24% lymphocytes and 1% eosinophils. Platelets were 250,000/cu mm. A cellulose acetate electrophoresis indicated normal serum proteins. Cryoglobulins and pyroglobulins were absent and immuno-electrophoresis was normal.

He was treated with intravenous heparin and given two blood transfusions. The Lee-White time never exceeded 13 minutes. He signed out against advice on the 5th hospital day.

*Final Admission* (one month later). His condition had deteriorated rapidly since his previous admission with marked edema of the lower extremities, hemoptysis and increasing dyspnea. He had discontinued all of his medication of his own accord. He finally developed gangrene of both legs extending to within 3 to 4 inches of the tibial tubercules.

Examination showed him to be pale, dehydrated and malnourished. Blood pressure was 120/60, and pulse 88/min and regular. There was gangrene of both lower extremities with a foul exudate and numerous ulcerated areas. There was also gangrene of the finger of the right hand. The femoral pulses were bilaterally equal but weak. The breath sounds were distant bilaterally with scattered rhonchi and coarse rales heard especially at the base. The heart was in sinus rhythm, the sounds were distant and no murmurs were heard.

The hospital course was marked by progressive deterioration. By the seventh hospital day gangrene of the left hand was noted. The temperature was normal until the fifth day when a peak of 101 F rectally was reached and he was febrile then until his death on the 13th hospital day.

Treatment consisted of procaine penicillin 600,000 units every six hours, I.M., from the 2nd until the 13th day, chloramphenicol 500 mgs twice a day, I.M., (day 10-12) and kanomycin 0.5 gm, I.M., twice a day (day 12). Gas gangrene antitoxin and blood transfusions were adjunctive measures used.

An electrocardiogram on the 3rd hospital day is described as showing marked sagging of the S-T segments in the chest leads, particularly from V3 to V6. An arterial biopsy showed a thrombotic focus with arteritis. The hematocrit was 19% with a hemoglobin of 5.1 gm. WBC's were 15,250 with 85% segmented cells, 7% band forms, 3% lymphocytes and 5% monocytes. On the 9th day WBC's were 34,699 with 86% segmented cells, 5% band forms and 9% lymphocytes.

### Differential Diagnosis

Dr. R. Walter Powell*: A 55-year-old man was admitted to the hospital in 1965 with gastrointestinal bleeding. He had presented on two prior admissions with peptic ulcer disease resulting in perforation in 1944 and sub-total gastrectomy in 1954. Since that time he had recurrent symptoms of, and therapy for peptic ulcer disease. Although peptic ulcer disease is the most common cause of GI bleeding, there are other causes such as esophageal varices, carcinoma of the stomach and, rarely, bleeding diatheses, the last accounting for less than 1% of stomach hemorrhages. He consumed a pack to a pack-and-a-half of cigarettes a day and had a chronic cough for many years which could have been symptomatic of chronic bronchitis, early emphysema, or the first sign of a carcinoma. His weight loss and anorexia were abnormal and they could be attributable to a carcinoma or to anorexia resulting from peptic ulcer disease. Scarlet fever at the age of 30 raises the possibility of rheumatic, renal, or cardiac disease.

On admission he had argyria as a very prominent cutaneous finding. Argyria is, however, felt to be only of cosmetic significance. The abdominal findings were not unusual. There was an epigastric scar which we would expect from the history of previous surgery and some tenderness of the epigastrium. He had no dorsalis pedis pulse on the right. One wonders if this is because of a block somewhere in the artery. We are told also that he had a phlebitis on the right which as a single manifestation is not too terribly significant but when it occurs repetitively may be a hallmark of a malignancy, particularly of the tail of the pancreas or stomach, or Hodgkin's disease. It is also sometimes seen with prostatic disease but we are told that the prostate gland was normal.

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*Assistant Physician, Department of Medicine, Wilmington Medical Center

I wonder what was the pathological report of the specimen removed at the subtotal gastrectomy. Could it have shown a tumor? Any tumor that lasted in the stomach for almost 11 years would be extremely unusual.

Laboratory work showed the expected anemia. The white count showed an attempt by the bone marrow to respond to the hemorrhage. It is also of note that 2% eosinophils were present; this may be of significance. GI series did not show any ulcer crater. Chest x-ray showed fibrosis of the right upper lung which could well have been due to an infarct which was healing or to pulmonary tuberculosis, also healed.

Cardiograms throughout the hospital admission were suggestive of an ischemic state without infarction. The abnormalities included sagging ST segments and inverted T waves but these are non-specific changes.

He was an unhappy patient. I wondered if there was a schizoid tendency here; paranoid schizophrenia may be a hallmark of other disease and in my experience particularly of lupus, but as time went on, I found no support for such a theory. A liver scan was abnormal but the liver biopsy failed to reveal abnormal tissue. There are no reports of liver function tests available to give any clues whether the biopsy perhaps missed an abnormal area. We know that if either SGOT, alkaline phosphatase, bilirubin or BSP are abnormal, chances of having positive biopsy with a malignancy are approximately 60% whereas if all tests are abnormal, it is about 95%.

Starting with the 14th hospital day he had recurrent episodes of pulmonary emboli which we suspect might have come from his migratory phlebitis. The lung x-ray changed and showed cystic changes which may have been necrosis following infarction. There was also bloody pleural fluid. In my experience it has been unusual to get as much as one liter of bloody fluid following an infarct. It is usually somewhat less and therefore again raises the possibility of some other diagnosis such as carcinoma or tuberculosis. Someone else was evidently also thinking of carcinoma for we find the patient was treated with instillation of radioactive gold into the pleural space. He had one convulsion which could well be the result of embolic phenomenon in the brain. Again, a slightly higher percentage than normal was found in his eosinophile count. No one would take issue, I think, with the anticoagulant therapy that was started but it did not seem to be of much benefit. Coumadin was started approximately on the day of discharge. This was probably because Coumadin is somewhat easier to control on an out-patient basis although heparin is the preferred drug when dealing with pulmonary emboli.

His fever does not suggest any diagnostic pattern to me. It is certainly consistent with neoplasia. In a recent study of several patients with fever of unknown origin, when the diagnosis was not made before two weeks, tuberculosis ranked as the prime cause of the fever with neoplasia and particularly bronchogenic carcinoma and chronic lymphocytic leukemia also ranking very high in incidence.

Blood cultures failed to yield any growth at all. The sputum cultures were abnormal in that the organisms reported are not generally found in the sputum. Was there perhaps a fistulous tract between the bowel and the lung? No evidence for this was presented so we can discount this possibility. The fact that the blood cultures did not yield any growth does not rule out bacterial endocarditis. A good percentage of the time there are no positive blood cultures with bacterial endocarditis and this very disturbing and very lethal diagnosis is made only at the time of autopsy. The rate of diagnosis of this disease has not improved much in recent years. If endocarditis is suspected, it should be treated despite lack of positive blood cultures. When there is a positive culture of an unusual organism, one must be very careful that there is not bacterial endocarditis even though the laboratory may consider this organism a possible contaminant. There have been instances when contamination was assumed and the patient died of endocarditis.

On the second admission he had gangrene of the first two fingers of his right hand. This could well be due to a clot in the radial artery but could also be from multiple clots within the digital arteries. On the basis of percentage, I suspect that it was one clot in the larger artery. We thus have evidence of clotting both on the venous and arterial side of the vascular system. Several possibilities come to mind. There is a hypercoagulable state and one of its causes is carcinoma, especially bronchogenic. This is thought due to anti-hemophilic globulin-like activity produced by the tumor itself. The clots so formed and the tumor itself can also directly produce a fibrinolysin-like activity with resultant bleeding. Another possibility is that discussed in the *American Journal of Medicine,* November, 1964. The title is *Unusual Manifestations of Endocarditis,* which suggests that marantic endocarditis is often found in the heart of people with carcinoma, particularly prostatic or lung; presumably such thrombi on the valves of the heart could embolize to the arteries. This would not explain the venous clotting here which could have been separately induced or perhaps both arterial and venous clotting were indeed due to a hypercoagulable state.

I worry about the possibility of collagen disease at this point. The patient still had 1% eosinophils; there are normal eosinophile counts but when mentioned in a CPC protocol always raises the possibility of collagen disease, especially polyarteritis. Some collagen diseases such as dermatomyositis are hallmarks of carcinoma but again there is not enough proof for this diagnosis in view of the normal serum globulins and the electrophoresis. The bleeding was probably not on the basis of decreased platelets as they were normal.

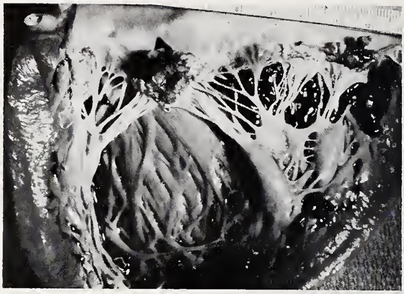

Figure 1
Multiverrucous vegetations on mitral valve

On the third admission he was found to have a markedly advanced progression of his arterial disease and he died a "septic" death, presumably from the acute necrosis of the skin of the hands and of the legs.

**Dr. Powell's Diagnosis**

1. Bronchogenic carcinoma.
2. Hypercoagulability secondary to bronchogenic carcinoma with fibrinolysis and related bleeding.

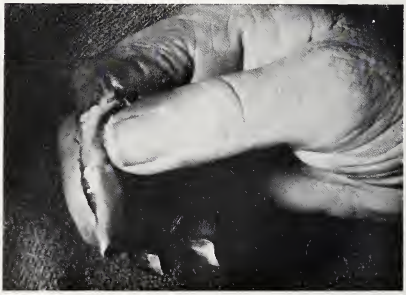

Figure 2
Gangarene of fingers

**Pathological Discussion**

Dr. Patrick F. Ashley*: At autopsy, the lesion in the right lung proved to be a solid

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*Senior Pathologist, Wilmington Medical Center

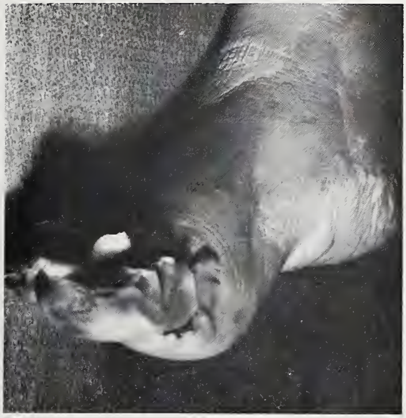

Figure 3
Gangrene of foot

greyish white tumor mass with areas of yellowish necrosis. The mass measured 6 cm in greatest diameter and was present in the posterior region at the base of the right upper lobe. Microscopic examination revealed the large cell pleomorphic type of bronchogenic carcinoma. There was involvement of mediastinal lymph nodes but no evidence of metastases outside the thorax.

Of particular interest were the findings in the cardiovascular system. The mitral valve (Figure 1) was the site of multiverrucous vegetations ranging in size from 3 mm to 15 mm. There was no evidence of pre-existing valvular disease and the cusps did not show evidence of ulceration or perforation. The vegetations generally were easily detached. Microscopically, the vegetations had a rather bland appearance consisting of an admixture of platelets and fibrin with occasional entrapped inflammatory cells. No bacteria were demonstrated in the vegetations. The gross and microscopic findings were those of nonbacterial thrombotic endocarditis. The other valves were unremarkable. The coronary arteries showed a moderately severe arteriosclerosis and there were patchy areas of myocardial fibrosis. The heart weighed 480 gm.

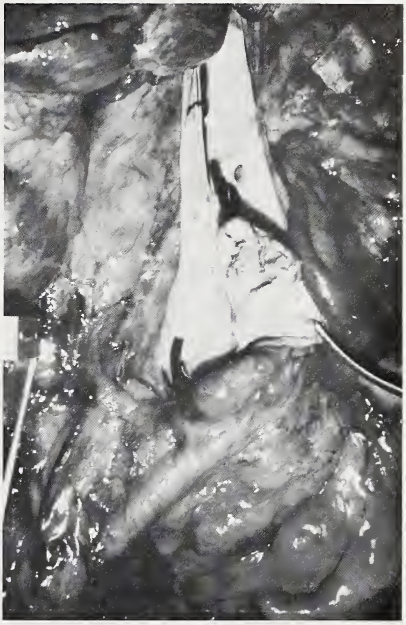

Figure 4
Thrombus occluding inferior vena cava

There was striking gangrene of the extremities. The toes and feet were deep purple and black and the lower legs were very edematous with blotchy discoloration (Figures 2 & 3). I believe that this gangrene, especially in the lower extremities, was due to both arterial and venous occlusion. The previous arterial biopsy showed either an embolus or a thrombus, in all probability, however, an embolus from the vegetations on the aortic valve. In addition, he had multiple infarcts in the kidneys as well as an infarct in the brain, these infarctions undoubtedly due to emboli from the aortic valve vegetations. There was evidence of venous thrombosis with the lower end of the inferior vena cava almost totally occluded by a pale greyish tan thrombus adherent to the wall (Figure 4). Embolization from this source also occurred as there was pulmonary infarction in the left lung with a hemorrhagic pleural effusion.

In the past, it was held that non-bacterial thrombotic endocarditis was an incidental occurrence in the course of any fatal disease and of no appreciable clinical significance. This is not the opinion of most investigators today who find these lesions, such as in the present case, to be a common source of emboli. In approximately one-third of the cases, there is an associated malignancy. Some state that the hypercoagulable state often encountered in malignancy may be an etiological factor in the development of these thrombotic vegetations on the heart valves. These vegetations not only give rise to emboli but may serve as a nidus for the development of a true bacterial endocarditis.

**Anatomical Diagnosis**

1. Non-bacterial thrombotic endocarditis, mitral valve, with multiple emboli and infarcts of distal extremities, kidneys and brain.
2. Bronchogenic carcinoma, large cell pleomorphic type, right upper lobe with metastases to regional lymph nodes.
3. Thrombosis of inferior vena cava with embolization and infarction, left lung.
4. Gangrene of extremities of arterial and venous origin.

## MIXED TO MATCH

While the argument rages whether generic equivalents are quality equivalents, we have prepared an equivalent (nominally, that is) list of some frequently prescribed drugs.

We've mixed them; can you match the proprietary with the generic name? Score yourself. 1. Less than 5 correct — very confused. 2. 5-10 matched correctly — only mildly confused. 3. All correct — you must have cheated.

1. norethynodrel
2. chlorpromazine
3. prochlorperazine
4. trifluorperazine
5. diphenhydramine
6. tripelennamine
7. pentaerythritol tetranitrate
8. tetracycline
9. chlorothiazide
10. diphenylhydantoin
11. lidocaine
12. prednisone
13. meperidine
14. chlordiazepoxide
15. tolbutamide
16. warfarin

a. Benadryl
b. Diuril
c. Librium
d. Orinase
e. Meticorten
f. Stelazine
g. Achromycin
h. Demerol
i. Xylocaine
j. Compazine
k. Peritrate
l. Dilantin
m. Thorazine
n. Pyribenzamine
o. Enovid
p. Coumadin

Answers

1=o, 2=m, 3=j, 4=f, 5=a, 6=n, 7=k, 8=g, 9=b, 10=l, 11=i, 12=e, 13=h, 14=c,
15=d, 16=p.

## PROGRESS REPORT:

# Greater Delaware Valley Regional Medical Program

William Hare
*Liaison Officer*

The Greater Delaware Valley Regional Medical Program has completed an initial organizational phase. It has moved from a program on paper to people at work. There will, of course, be further organization as the program expands and accelerates but the Greater Delaware Valley Regional Medical Program now has reached the stage where it can turn its primary attention from structure to planning.

More than 135 persons already are actively contributing to the Greater Delaware Valley Regional Medical Program, either full-time, part-time or as consultants. Many of them are on the Ad Hoc Committees or Task Forces, the mechanisms whereby the problem of planning an overall regional medical program is divided into its substantive parts.

Another way of looking at the program is geographically. Within the policies established by the Program Committee, primary responsibility for sub-regionalization rests with the Coordinating Committee through the Coordinator's Office. At present the work is being carried out by an Area Liaison staff of four under the direction of the Chief, Area Liaison. November 1, 1967, the first Area Office was opened in Wilmington, Delaware. Two other Area Offices were opened shortly thereafter in Southern New Jersey and Northeastern Pennsylvania. They are the first of approximately ten contemplated Area Offices. Area-wide Committees are planned in each of these ten Areas, made up of community leaders — practitioners, hospital administrators, and others — who will devote a small but essential block of time to the Regional Medical Program. The coordinating staff must continue to advise, guide, stimulate and otherwise help Area-wide Committees accomplish their mission. This is the primary responsibility of the Area Liaison Officers. The key, of course, will be to assure that while the local programs reflect local needs and interests, they are consonant with the overall Regional Program.

In support of this Area concept, meetings have been organized at which some 300 persons have participated. In nine Areas local leaders have taken active steps to form Area-wide Committees. The Staff has visited more than 40 hospitals in 12 counties in the three states out of a total of more than 220 hospitals in some 32 counties. These hospitals do not include the major teaching hospitals already actively involved in the Regional Medical Program.

Like any other aspect of good medicine, the Greater Delaware Valley Regional Medical Program stands on a base of research, training and service. It is no coincidence that the first three Ad Hoc Committees established relate to the three phases: Data Analysis and Monitoring, Continuing Education, and Categorical Diseases. This report has touched on Area Liaison Offices. In addition it will cover the activities of the Task Force on Continuing Education. Subsequent reports will cover the work of the two other Committees.

Delaware is represented by Leonard P. Lang, M.D., President of the Academy of Medicine, who is serving as a member of the *Task Force on Continuing Education.*

The Task Force on Continuing Education serves the Regional Medical Program by developing plans for the continuing education of physicians and allied health personnel.

Committee members were chosen primarily for their interest and competence in the education of the practicing physician. The Committee will be expanded when the continuing education of allied health personnel comes under study.

The Committee is focusing on educational activity which would result in modification and improvement in the care of patients coming to the physician. Emphasis is on learning rather than teaching.

Four studies or sources of data are being utilized in planning for Continuing Education:

1. *"Deficit of Performance" Study*

The Committee adopted carcinoma of the cervix as a model for study. Nearly all deaths from carcinoma of the cervix could be prevented by simple application of well-established procedures, i.e., the performance of routine, periodic Pap smears from the cervix of women in the upper age bracket, with prompt follow-up of abnormals.

Carcinoma of the cervix is used to illustrate a "performance deficit" which could be remedied by education. The same approach might be used in attacking other health care problems. For example, future health care objectives for the Greater Delaware Valley Regional Medical Program might be: Reduction of the frequency of rheumatic fever; reduction of arteriosclerotic heart disease as a cause of death under age 50; improved accessibility to emergency care facilities; improved service to patients with disturbances of the blood clotting mechanism; improved detection of secondary hypertensive vascular disease, and early detection of cancer of the prostate.

Once the health care objectives are spelled out, the educational component of the steps necessary to attain the objectives can be determined and programs of implementation devised.

The approach to carcinoma of the cervix is based on the hypotheses that:

A. Greater utilization of existing knowledge regarding diagnosis and treatment can result in an increased average survival rate.

B. The overall survival rate for cervical cancer depends on the clinical state of the disease at the time of diagnosis and treatment. The earlier the lesion, the better the prognosis.

C. Carcinoma of the cervix can be detected in an asymptomatic stage by use of the cervical-vaginal cytosmear. Pre-invasive cancer or carcinoma-in-situ of the uterine cervix is usually associated with a 100% five-year salvage rate when properly diagnosed and treated.

Larry McGowan, M.D., Director of the Cervical Cancer Control Program at Fitzgerald Mercy Hospital, is serving as gynecologic consultant to the Task Force. Dr. McGowan is gathering information on the incidence rate and mortality carcinoma of the cervix in the Greater Delaware Valley Region. and on the characteristics of physicians who report new cases and provide care for them. This study also aims at gaining a better understanding of why certain physicians may not perform the test.

2. *Survey of Physicians*

A survey of physicians offers one way for physicians themselves to participate in shaping the content of the educational program. The data to be gathered will include standard demographic information, level of professional education, type of practice, arrangements, hospital affiliations, methods used to keep abreast of new medical knowledge, identification of some clinical areas in which the physician may express a need for educational help, and the development of selected data on the patients he sees. The principle underlying this approach is that the busy practitioner, like any student, will learn only what he wants to learn, i.e., that which is pertinent to his practice. A mechanism must be developed for allowing him to participate in the development of a program in continuing medical education which is suited to his needs.

It is estimated that work on the schedule and field testing should be completed by the end of 1967. The actual survey would be conducted early in 1968.

3. *Survey of Current Continuing Education Programs*

A. Programs of the Medical Schools

Each of the medical schools, five allopathic and one osteopathic, has continuing education programs. The schools are planning to extend and improve their programs. A complete description of each school's investment in continuing medical education is being developed.

B. Programs Approved for Credit by the American Academy of General Practice

Through the courtesy of the Pennsylvania and Delaware Chapters of the A.A.G.P., descriptive information was obtained on courses approved in 1965, 1966, 1967, and 1968. Similar information for New Jersey has been requested through the Regional Medical Program for New Jersey.

4. *Utilization of State and National Data*

The Committee has begun to organize the national and state data which are potentially useful in planning for continuing education. Among the sources are the *Distribution of Physicians, Hospitals and Hospital Beds in the U.S., 1966;* the reports of the *Professional Activities Study — Medical Audit Programs of the University of Michigan;* and the reports of the *National Disease and Therapeutic Index.*

The Task Force on Continuing Education works closely with the Ad Hoc Committees on Data Analysis and Monitoring and Categorical Diseases, whose activities will be detailed in subsequent Progress Reports.

Each group is looking at improving the delivery of health care from a different point of view. The composite picture they present should enable the Coordinating Committee and the Program Committee to develop a varied and meaningful program.

Copies of a detailed report on the recent activities of the Task Force on Continuing Education are available from the Coordinator's Office on request.

The Greater Delaware Valley Regional Medical Program is based on the principles of cooperation, and hopes that any one desiring additional information will feel free to call on members of the Coordinator's staff, the Task Force, the Program Committee, or the Regional Advisory Group.

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# In Memoriam

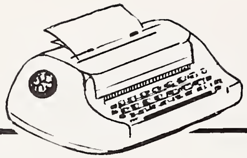
## STANLEY S. SZYPKOWSKI, M.D.

Dr. Stanley S. Szypkowski, a practitioner in Wilmington for over fifty years, died in the Wilmington General Division of the Wilmington Medical Center at the age of 77 on February 15, 1968, after a short illness.

Dr. Sypzkowski, known to his patients as "Dr. Ship," had expressed a desire to be able to do two things: Live beyond 70 years and report all cases of drug addiction to the Wilmington police.

Dr. Szypkowski was a native of Pennsylvania, a graduate of the University of Pennsylvania, and received his M.D. from the University of Pennsylvania Medical School in 1917. He came to Wilmington that year to enter private practice, which he continued actively until shortly before his death.

He is survived by his widow, Mrs. Marie Szypkowski; a daughter, Mrs. Adeline Penrose; a grandson, and his brother who are all Wilmington residents.



# Special Reports

## INTERNATIONAL CONFERENCE ON LEUKEMIA-LYMPHOMA

### Ann Arbor, Michigan, October, 1967

John E. Benzel, M.D.

As part of a continuing year-long celebration of the One Hundred and Fiftieth Anniversary of the University of Michigan, the Department of Postgraduate Medicine held an International Conference on Leukemia-Lymphoma. Participants came from as far away as Australia, England, and Africa although, as would be expected, the majority came from the United States.

Nothing new, startling or revolutionary was brought out at the conference, but as Dr. William Dameshek pointed out in his summation of the conference, "It served to bring us all up to date." Thus, I cannot bring any promise of a breakthrough in this area of medicine but it should be understood that enormous strides have been made in just the past few years in the method of research and in the control of these unfortunate illnesses. A few of these current advances are presented below.

The conference opened with a consideration of the magnitude and the epidemiology of the leukemia-lymphoma problem. It is estimated that between 350,000 and 400,000 people die of these diseases annually in the world. This represents approximately 10% of all cancer deaths. Approximately 45% of the leukemia deaths occur in children. There is an overall increase in the rate of occurrence of leukemia which seems attributable to the increased lifespan in reporting countries. The incidence will be modified by the age distribution of the population, type of leukemia, diagnostic ability and criteria, and the various as yet unknown causative agents at large in the population. So far, study of populations with similar or disparate disease rates has not afforded any clues as to etiology.

The medical literature in the past five years has become more and more replete with references to a new disease entity known as Burkitt's (or African) Lymphoma. The term "new" is used advisedly since artifacts of many old equatorial African cultures bear evidence that the disease has been around for a long time. It was first described a few years ago by Dr. Dennis Burkitt, a British surgeon. The highlight of the conference was a presentation by Dr. Burkitt of the occurrence, clinical manifestations, and results of therapy of this disease of crucial importance.

This affliction is endemic to central equatorial Africa and occurs from the Indian to the Atlantic Oceans. It primarily affects children with peak occurrence in the 7-8 year age group. Children under 2 or over 16 are rarely affected. It has a tendency to cause unsightly tumors of the mandible and maxilla with invasive qualities. Ovaries and retroperitoneal nodes are also frequently involved but the classical sites of lymphoma invasion seen in this country (eg, mediastinum, liver and spleen) are usually spared. The most intriguing aspect of this disease is the epidemiology. It does not occur above 5000 feet above sea level nor in areas where the temperature falls below 60 F at any time of the year, or where the rainfall is less than 20 inches per year; ie, in climate not favoring mosquito propagation. Its distribution corresponds to that of yellow fever, sleeping sickness, and breakbone fever, all known arthropod-borne illnesses. The island of Zanzibar is not affected even through the climate is the same, and this has been related to effective mosquito control. The evidence also supports a viral etiology. For example, the age incidence of anti-lymphoma antibodies exactly parallels that of anti-yellow fever antibodies. Immigrants to the endemic areas contract the disease at any age, presumably because of lack of previous exposure and antibody accrual. The space-time clustering is such that the odds are 1000:1 in favor of the disease being due to an infectious agent. The disease has no predeliction for any specific ethnic or racial group; all persons in the endemic area are at risk. Furthermore, the African situation is exactly mimicked by a similar distribution in eastern New Guinea. The conclusion was reached by Dr. Burkitt that this disease is a rare presentation of a common infection which is probably viral and probably mosquito-borne. Approximately 15% can be cured by cyclophosphamide, vincristine, or methotrexate which are not known to have antiviral actions but certainly do have immunologic effects. Sometimes only one injection is required. Some cases appear to remit spontaneously, the tumors melting away after biopsy only. So far, no deaths have occurred when freedom from symptoms has lasted 12 months but the disease is fatal in 85%. The disease, or at least its pathological equivalent, is now being reported with increasing frequency in many countries.

I believe the pivotal stature of this entity can now be seen. Does it represent a link between infectious and malignant disease? Can virus infestation induce cell autonomy and invasiveness? Does variation in host immunity or other host response account for sporadic occurrence outside the endemic areas? If many are afflicted, why do only a few develop tumors? And why do some of those succumb while others are permanently cured? Is this an immune phenomenon? Is is possible that leukemia and/or lymphoma are rare manifestations of an infectious disease due to a ubiquitious virus also with variation in host immunity accounting for the sporadic occurrence of overt and fatal pathology? Repeated epidemiologic analysis of leukemia-lymphoma including the occasional clusters in small areas does not support the concept of viral or other infectious etiology. Yet the analogies to Burkitt's tumor persuade us to continue the search. If some of these crucial questions can be answered with assurance about this curious African disease, it will be a giant step toward solving the problem of leukemia-lymphoma and perhaps of cancer in general.

Much evidence for "the viral theory" was presented at the conference, principally by virologists from NIH. Many highly sophisticated techniques, including electron microscopy, immunofluorescence, and other immune methods have been exquisitely worked out by these and other investigators. These studies yield indications of the presence of Herpes virus-like particles in humans with leukemia and lymphomas of various types. However, trying to find them is literally like searching for a needle in a haystack (eg, only a few out of 10,000 electron microscopy preparations may show virus-like particles). Further, the particles can be found in normals with virtually the same frequency. (Understandably, the "virus party" tends to play this fact down.) Even if it can be established that viruses are clearly present in leukemic cells, how can it be proved that they have etiologic, as opposed to opportunistic, significance? Unfortunately, Koch's postulates can never be fulfilled for it is unthinkable to attempt to induce leukemia in human volunteers. Although leukemia cells have been given to non-leukemic individuals, usually relatives, in an attempt to obtain anti-leukemia antibodies or lymphocytes to be used therapeutically (but sad to say, fruitlessly), this cannot be done until the disease is completely curable.

Stimulation for the virus search comes from the animal model system, acute murine leukemia. This disease can be repeatedly reproduced from generation to generation by suckling or passage of cell-free ultrafiltrates and the known virus can be demonstrated in the pathological tissue. The immunological methods applied to the study of human leukemia are reliable and positive when used in the animal system. It is well known that mice are not "little men," that conclusions about them are not necessarily transferable to humans and yet the analogy is so strong that our government has committed millions of dollars to finding the common bond. Dr. Ray Bryan stated, "With the information available, we have a tremendous obligation to find out if the germ theory holds for this group of diseases."

Certainly one of the most remarkable medical phenomena of the 1960's has been the meteoric development of immunology and, as might be expected, the immunologists have turned their attentions to the cancer problem to see if their technique can shed any light on host permissiveness and etiology. Early in the conference, the question was posed: What is the minimal biochemical aberration necessary in a cell to render it abnormal, foreign, or neoplastic? A corollary to this question is: Are neoplastic cells sufficiently different from normals that new antigens (presumably foreign) are formed? If so, why doesn't the body recognize them as foreign and reject them? That is, what accounts for this "permissive attitude"?

In man, it is well known that autoimmune phenomena and lymphoid neoplasia commonly coexist. Witness the frequent occurrence of Coombs-positive hemolytic anemia in chronic lymphocytic leukemia and the inordinate propensity for lymphoma to develop in patients with Sjogren's Syndrome. Animal models have been set up to study these interrelationships in the laboratory. The New Zealand Black mouse, studied by Mellors in New York, spontaneously develops Coombs-positive hemolytic anemia at the age of 4-8 months. This is followed by the development of membranous glomerulonephritis and, in 26%, lymphoma or leukemia. Furthermore, this disease can be transplanted to Swiss mice by passage of cell-free filtrates suggesting that this is virus mediated.

Dr. Robert Schwartz from Boston reported on another mouse colony which develops membranous glomerulonephritis, nephrotic syndrome, lymphoid hyperplasia, and ultimately reticulum cell sarcoma. By immunofluorescent staining, it can be demonstrated that mouse leukemia virus protein is present in the basement membrane of the renal glomerulus, again suggesting that a virus may be the common link between autoimmune and neoplastic disease.

Although the immunological questions posed above have not been answered, the work of Dr. Robert Good of Minnesota has brought us farther down the path of understanding how the lymphoid system which has been proved to mediate both cellular and humoral immunity develops. He has shown that the thymus is responsible for the development of the lymphocytes in the node germinal centers and that the Bursa of Fabricius (in fowl) controls development of the node paracortical plasma cells. There is current evidence, although not yet conclusive, that mammalian Peyer's patches correspond to the avian bursa and have the same function. Cellular (delayed) immunity is lymphocyte-dependent and antibodies (immunoglobulins) are manufactured in the plasma cells. Thymectomy and bursectomy can modify the host's response to autoimmune and neoplastic disease in animals and it is Dr. Good's contention that abnormalities of man's immunologic system may account for the development of neoplastic processes; immunologic tolerance of the cancerous growth occurs. The question remains, however: Is immunologic tolerance induced by the malignancy or is malignancy promoted by immunologic tolerance.

There has been much emphasis in the past few years on the pathological and clinical staging of Hodgkin's Disease for the purpose of setting up more accurate prognostic criteria and for evaluating various therapeutic regimens (irradiation and chemotherapy). This was prompted by the lengthy survivals obtained in some patients by a few investigators using eradicative radiotherapy. Thus, if one will accept that Hodgkin's Disease is unifocal at its onset and that 3500-4000 rads will eradicate the disease from the irradiated area, and there is evidence to support both of these concepts, then it follows that this disease is curable. This hypothesis is gradually winning more and more advocates as more encouraging data accrue on the efficacy of radical radio-therapy in producing long-term survivors. Several investigators at the conference reviewed these aspects of Hodgkin's Disease; the results are still most promising. Further, Dr. Saul Rosenberg of Kaplan's group at Stanford reported on preliminary results using the same approach in lymphosarcoma. Their early results seem to indicate that tumoricidal x-ray doses to the primary tumor sites and the adjacent node-bearing areas in patients with Stage I or II disease and constitutional symptoms can yield increased survival. The numbers are small but this gives encouragement that lymphosarcoma may have a unicentric origin and be potentially curable by x-ray if caught early enough. There may be a lot of wishful thinking in this area, but this new approach gives substantial hope that the victims of the lymphomas may suffer a better fate than previously.

The conference was completed by turning attention to the therapy of acute and chronic leukemias which still largely dependent on the drug arsenal. The arsenal has been enlarged over the past five years and includes prednisone, vincristine, 6-mercaptopurine, methotrexate, arabinosyl cytosine, and cyclophosphamide for use in acute leukemia. One of the principal advances has been the advantage gained by using drug combinations and higher doses in an attempt to obtain larger cell kill. Skipper has shown in leukemic mice that survival is directly related to the number of cells destroyed by chemotherapy and the same relation seems to hold for acute lymphoblastic leukemia in children. As a consequence, chemotherapeutic programs are being devised with the idea of total cell kill in mind in the hope that eradication and cure may result. This in turn is being made possible by better patient support through improved blood banking, antibiotics, and antiseptic technique (eg, the life island, laminar flow ventilation).

Burchenal presented his interesting collection of long-term survivors of acute leukemia, some of whom appear to be cured. This group is being closely scrutinized to see if any clues can be detected that would lead to improved therapy of others. So far, no significant differences have been detected but it still keeps the hope for cure alive, especially in the parents of leukemic children.

Lastly, some new drugs for leukemia undergoing clinical trial were mentioned, notably rubidomycin and 1-asparaginase. Rubidomycin has been given favorable notice in Europe but in this country, there is less optimism principally because of severe side effects, the most distressing of which is sudden cardiac arrest. The drug does seem to have potency for inducing remission in otherwise resistant cases and could become very useful if the untoward effects can be controlled. Much hope is held for 1-asparaginase but it is far too soon to judge.

In leukemia-lymphoma in general, hope still outstrips results, but promise is narrowing the distance.

## SYMPOSIUM ON THE MENTALLY ILL OFFENDER

**Delaware Academy of Medicine, November, 1967**

William J. Vandervort, M.D.

On November 4, 1967, a symposium was held in the Delaware Academy of Medicine, on "*The Treatment and Understanding of the Mentally Ill Offender.*" The fact that the Department of Correction and the Department of Mental Health were two of the four sponsoring organizations showed how two Departments of our state government could work together in helping to solve a mutual problem. This also indicates the trend in thinking that mentally ill offenders need a hospital oriented environment as opposed to a punishment or prison cell oriented environment. The fact that the Medical Society of Delaware and the Delaware Academy of Medicine also sponsored this symposium showed the interest and responsibility that the physician feels in the social problems of his community.

The principal speaker of the meeting was Harold M. Boslow, Director of the Patuxent Institution, Jessup, Maryland. Doctor Boslow is a psychiatrist and has headed this Institution for 11 years. His staff includes nine psychiatrists, eight psychologists, and a number of social workers, psychiatric case workers, and custodial officers. In Maryland, after the judge has passed sentence on a particular person he may have that person referred to the Patuxent Institution for a diagnostic evaluation. If the offender is found to be mentally ill, he can then be put into the Patuxent Institution on an indeterminate sentence. Here, under intensive study by experts, his rehabilitation would seem to have a better chance than in the penal environment.

The institution must review each case yearly. The court does not have a set time when a review is required. However, the judge may release the inmate from this indefinite sentence to the sentence he originally imposed at any time. The percentage of recidivism is felt to be approximately 75% in most prisons. The inmates that the judge releases from Patuxent Institute have about a 53% incidence of recidivism, and the inmates released by Patuxent when their psychiatrists feel the inmates are ready to be released have only a 4% incidence of recidivism. The annual per capita cost at this institution is $5,000.

Doctor William Nardini, Commissioner of Corrections, was the moderator for the panel which discussed Doctor Boslow's paper. Doctor Nardini has been interested in developing a similar diagnostic center for Delaware. Not only would this give the mentally ill offender expert care and a better chance of rehabilitation, but also would serve to give to the courts in-depth psychiatric, psychological, and sociological information on inmates prior to their sentencing.

Alexander Greenfeld, U. S. Attorney for the District of Delaware, felt that the Maryland statute that permitted the Patuxent Institution to be created was a good one but that the terms should be more accurately defined. Judge Robert C. O'Hora, Judge of the Superior Court of the State of Delaware, felt that we must be certain of our constitutional safeguards with an indefinite sentence. Perhaps if we used indefinite commitments as we do with the mental hospitals for example, this would be not only a technical difference but a philosophical difference. Irwin G. Weintraub, Ph.D., Clinical Psychologist, commented concerning the medical, psychiatric, and psychological workup that this type of offender would require. H. Thomas McGuire, M.D., past President of the Medical Society of Delaware, discussed Doctor Boslow's paper from the viewpoint of the physician in practice. Doctor McGuire emphasized the lack of communication and difference in nomenclature that is often a problem in the field of the mentally ill offender. Doctor J. B. K. Smith, Superintendent of the Delaware State Hospital, felt that this approach for Delaware was desirable. He agreed that there are many mentally ill offenders in Delaware who are released prematurely to society because under existing laws there is no way to keep them in an institution. That is to say, when their 90 days or 6 months or whatever their term may be has expired, they must be released no matter how dangerous they may be. Obviously, an indeterminate commitment for this type of inmate would be desirable both to protect the public and to protect the offender. Doctor Smith also emphasized the importance of appropriating adequate funds for a new project when the new project is passed by the Legislature. If new responsibilities on alcoholism, drug addiction, and other categories are passed by the State Legislature but the funds for the psychiatrists, psychologists, and other staff are not forthcoming, this contributes to the failure of the program. The panel also agreed that it is the staff, not the building, that makes the program.

The problem of how to handle a criminal has long been *with* society. Perhaps separating inmates into those emotionally unstable and those emotionally ill is a rational approach. The emotionally unstable prisoner as of this time would seem best treated in a prison facility with adequate staff and a good probation system.

The treatment of the emotionally ill criminal leaves much to be desired. Alcoholics who commit no crimes except to drink excessively and are found lying in the streets drunk are not rehabilitated by 30 days in prison. The drug addict who has been on heroin for five years is not rehabilitated by one year in prison or by a term at Lexington, Kentucky. (The relapse rate at the Federal Hospital in

Kentucky is said to be 95% for heroin addicts.) The sociopath makes up a large percentage of problem criminals and it is interesting that Doctor Boslow states that, contrary to common opinion, these people can be helped if given the proper setting. Psychiatrists have found that if this inmate can change from a psychopathic handling of his problem to a neurotic one his behavior is then made socially acceptable. Granted, problems remain, but they then become more of the problems of the average patient rather than the problems of those committing antisocial acts.

It is my opinion after talking to many physicians of the Medical Society of Delaware that the doctors of Delaware would back such a program for our state. It is also my opinion that society prefers a hospital type environment for the mentally ill offender. We must hasten to add, however, that this approach should not be confused with a "country club environment," "coddling of prisoners," "sympathizing with the criminal instead of the victim." We actually are asking for an indeterminate commitment so that these dangerous people are not released prematurely and we are asking for proper tools to attempt to rehabilitate the mentally ill offender. This has nothing to do with putting the interest of the criminal over that of the victim.

It is difficult to judge the success of this symposium. If Commissioner Nardini is able to convert the ideas mentioned at this symposium into a diagnostic and treatment center for the mentally ill offender in Delaware, then the influence of this symposium will be evident.

## FOUR CLINICAL CENTER STUDIES

### Tumors

Referral of patients with tumors is now in progress by the Medicine Branch of the National Cancer Institute at the Clinical Center, Bethesda, Maryland. This investigation is to gain information on rate of cellular proliferation and growth of tumors in man. A limited number of patients with untreated lymphosarcoma, or reticulum cell sarcoma with tumor readily accessible to biopsy, are of particular interest. Write: Vincent T. DeVita, M.D., Clinical Center, Room 12-N-236, N.I.H., Bethesda, Md. 20014.

### Behcet's Syndrome

Patients may now be referred for a continuing study of Behcet's syndrome being conducted at N.I.H. Institute of Dental Research, Bethesda, Md. Patients with oral ulcerative lesions and other characteristic manifestations, such as arthritis, ophthalmologic inflammation, erythema nodosum, erythema multiforme, brain stem, meningomyelitic or organic confusional syndromes, or significant gastro-intestinal disease. Studies will include blood tests, electroencephalography and lumbar puncture. Write: Norman A. Cummings, M.D., Clinical Center, Room 2-B-10.

### Lymphosarcoma

Patients with lymphosarcoma may be referred to the National Cancer Institute, N.I.H. Patients with biopsy proven disease with no treatment are eligible for admission as inpatients for diagnostic elevation and treatment as indicated. Write: Robert B. Howe, M.D., Clinical Center, Room 4-B-09.

### Bilateral Cryptorchidism

These patients may be referred to the Surgery and Endocrinology Branches of the National Cancer Institute. N.I.H., Bethesda. Needed for these studies are patients of all ages with bilateral cryptorchidism; patients in whom exploration is contemplated or in whom exploration has already failed to reveal gonads are of particular interest. Write: Elwin E. Fraley, M.D., Clinical Center, Room 10-N-119.

# Highlights

## IMMUNITY IN CANCER

John R. Durant, M.D., — *Temple University Medical School. Medical Conference, WMC, November, 1967*

Increasingly, research interest in cancer is centering on attempts to unravel the relationship between the immune process and protection from or induction of malignant change. The coincidence of abnormalities in the defense systems of the body and malignant disease is not random. It has been recognized for a long time that various neoplasms, particularly lymphomas, appear to induce immunologic abnormalities including 'autoimmune' disease. On the other hand, the possibility that defense mechanisms result in the appearance of malignancy seems logically remote. There are, however, recent experiments in mice and observations in man which suggest both that immune mechanisms can result in changes leading to malignancy and that some initial stress (a virus, for example) may initiate a chain of events leading through 'autoimmune' disease into malignancy.

Doctor Robert Schwartz has produced runt disease in a strain of mice by injecting parental spleen cells into the first generation of a tolerant hybrid strain. Untreated mice died of the runting. Some were made to survive by the administration of amethopterin (methorexate). A remarkable number of these developed a lymphomatous disorder, the etiology of which appeared to be neither chemical nor viral. This same investigator, however, more recently has produced 'autoimmune' disease in another animal model and has shown the evolution of malignancy which, in this case, is very likely viral in origin. This last set of experiments is remarkably similar to work done by Mellors and his associates with the highly inbred NZB/B1 mouse made famous by Sir MacFarland Burnett. In this animal an apparently autoimmune disease characterized by a positive LE cell test, Coombs positive hemolytic anemia, the nephrotic syndrome, and hyperglobulinemia invaribly develops. Such animals by the 52-61st generation also develop a remarkable number of malignant neoplasms which appear to be lymphomatous. In this case, the glomerular lesions of the 'autoimmune' disease stain positively with a fluorescent antimurine leukemia virus antiserum, strongly suggesting a viral etiology for the 'autoimmune' disease and perhaps also for the lymphoma.

Clinical observations also suggest a relationship between abnormalities in the immune system and cancer: (1) Patients with malignant lymphomas have both an increased incidence of associated collagen disease and a number of well recognized autoimmune complications. (2) Boys with the sex-linked variety of aggammaglobulinemia which produces an obvious antibody deficiency syndrome and frequent infection succumb to lymphoma with remarkable frequency. (3) Children with ataxia telangiectasia which is associated with a defect in delayed reactive hypersensitivity (sometimes also of IgA) have frequent infections and then may also develop a malignant lymphatic disease. (4) The Wiskott-Aldrich syndrome with an increase in IgA and a deficit in delayed reactive hypersensitivity has both an increased susceptibility to infection and to malignancy. (5) Patients with both Bloom's and Fanconi's syndromes in which chromosomal abnormalities have been reported in their somatic cells including the lymphocyte (and presumably the polymorphonuclear cell) have an increased susceptibility to both infection and malignancy.

Not all disorders characterized by deficits in the immune system and frequent infections develop malignancy more frequently than expected. The first of these is chronic granulomatous disease in which the immune system is evidently normal but the polymorphonuclear cells are deficient in the ability to digest phagocytosed bacteria presumably as a result of a defect in the hexosemonophosphate shunt. The second example is that of athymic alymphoplasia in which there is a remarkable susceptibility to infection as a result both of absent immunoglobulins and deficient delayed reactive hypersensitivity. This situation is perhaps analogous to that in mice in which neonatal thymectomy prevents the occurrence of leukemia. The susceptibility can, however, be restored by a thymic transplant. In this case, the leukemia which develops can be demonstrated to be of the host and not of the donor cells. These observations suggest that the list of clinical syndromes having both infection and subsequent malignancy is due to something more complicated than decreased defense against and consequent increased susceptibility to some specifically oncogenic agent such as a virus. It may well be that any of a variety of stressful agents when encountered by a deficient or defective defense mechanism are not completely destroyed. These persisting stimuli, such as the donor cells in Schwarz's runted mice or the virus in the NZB/B1 mouse, could continue to provoke the existing defense mechanisms to greater effort in the unsuccessful attempt to rid the body of them. At some point the stimulated cells of the defense systems might thus become autonomous and hence lead to 'autoimmune' disease and/or malignancy of the reticuloendothelial system. Similarly, continued or repeated stress directed against a cell with defective chromosomes could have the same effect. In this view, therefore, there need be nothing specifically oncogenic about the original stimulus. Anything which succeeds in provoking the immune mechanism to a continuous but unsuccessful effort will suffice.

Obviously, this is not the only mechanism for the induction of malignant disease, but it does seem to explain some of the clinical and experimental phenomena noted. If correct, one of the challenges of the future is learning to manipulate the defense systems in such a way as to prevent oncogenesis without simultaneously encouraging it.

## HYPOGLYCEMIA IN CHILDREN

Robert Kaye, M.D. — *University of Pennsylvania. Pediatric Conference, WMC, November, 1967*

Blood sugar levels are normally lower in neonates than in older children and adults. Hypoglycemia in neonates is defined as a blood sugar by the glucose oxidase method of less than 30 mgs/100 cc in full term infants and less than 20 mgs/100 cc in prematures. After the neonatal period normal blood sugars are at least 40 mgs/100 cc. Symptoms of hypoglycemia in the neonate frequently vary from the classic seizure pattern. Symptoms may be cardiorespiratory or central nervous system in type and may include tremor, cyanosis, shrill cry, rotating motions of the eye, irritability or listlessness and poor feeding as well as generalized seizures. A high index of suspicion for hypoglycemia should be entertained in all babies who are "small for dates," ie, that have a low birth weight for their gestational age, as well as in the smaller of discordant twins, progeny of toxemic mothers, and erythroblastotics.

It is important that specific therapy with intravenous glucose not be withheld pending laboratory reports. Especially in smaller infants, the homeostatic mechanisms for keeping glucose available for the brain are underdeveloped and the children are thus especially vulnerable to the consequences of hypoglycemia.

Significant clinical hypoglycemia has the rather low incidence of 3 per 1000 full term deliveries and 60 per 1000 premature deliveries. However, it is responsible for one-third of neonatal convulsions.

An etiologic diagnosis can frequently not be made. Since the central nervous system controls blood sugar homeostasis, hypoglycemia may be secondary to a primary central nervous system abnormality. It should be remembered that all of the endocrine mechanisms responsible for the metabolism of glucose are designed to raise blood glucose; insulin is the only lowering mechanism. Glucagon, growth hormone, and epinephrine all tend by various means to keep glucose levels up. Since the brain is the only organ which can utilize glucose without insulin, all these endocrine mechanisms serve to divert glucose from uptake by muscle and other tissues and keep it available for brain metabolism.

The emergency management of the baby with suspected hypoglycemia should include immediate infusion of 50% glucose, 2 cc/kg, with subsequent I.V. drip of 10-15% glucose, 75-100 cc/kg per day. This therapy should be tapered rather than abruptly discontinued and it should be noted that severely affected babies may have abnormally low blood sugars even while such an infusion is running. If the above proves inadequate to sustain a normal blood sugar, additional therapy includes hydrocortisone with a dose of 5 mg/kg per 24 hours or ACTH, 5-10 units I.M. every 12 hours.

Although hypoglycemia was formerly thought a transient phenomenon limited to the first ten days of life, it is now well recognized that it may last for months or even years. McQuarrie first described spontaneous idiopathic hypoglycemia of childhood in 1964 and made the suggestion that ACTH therapy would frequently serve to keep glucose levels elevated. Colle and Ullstrom, in 1964, described ketogenic hypoglycemia. The latter has been experimentally induced after 5-6 hours of infusion of ketones in susceptible infants.

The age of onset of hypoglycemia may help in the differential diagnosis. The ketogenic type of hypoglycemia has its peak incidence of occurrence late in the first year of life, which is well after the majority of the spontaneous idiopathic hypoglycemics have been manifest. Islet-cell adenomas in children are not apt to occur before the age of 4 years.

At the University of Michigan a recent review of 100 cases of childhood hypoglycemia studied from 1950 through 1964 demonstrated that 72 of these were in the "idiopathic" category with 17 being considered familial, 7 due to leucine sensitivity, 2 to prematurity, 31 ketotic, and approximately 12 unclassified. Other rare specific causes for hypoglycemia include such diseases as glycogen storage disease, galactocemia, adrenal hyperplasia, liver disease, cretinism.

Helpful aids to diagnosis, which must always await therapy with glucose, include tests of serum electrolytes, liver function, and occasionally provocative tests such as leucine tolerance, and prolonged fasts.* Most recently a tolbutamide tolerance test has been described and may be a useful alternative to the 24 hour fast. Glucose tolerance tests are seldom of value in young children; the curve is most always flat which may, however, be related to slowed absorption following the trauma incidental to performing numerous venepunctures on children. Techniques which utilize a single venepuncture with an indwelling needle and subsequent collection from it may well produce a curve of a different shape.

Until recently the mainstay of treatment for idiopathic hypoglycemia has been steroid administration which was associated with the expected problems, most distressing being growth retardation as well as incomplete control in many. For this reason partial pancreatectomy has been performed for children with growth arrest, inadequate control, or Cushingoid changes. Eleven of twelve patients so treated at Children's Hospital in Philadelphia recently have successfully maintained their blood sugars at normal levels, postoperatively. Diazoxide, a drug originally screened as an antihypertensive, is the newest agent in the therapy of this situation. Eleven children recently treated in Philadelphia, seven of whom had been unsatisfactorily managed with steroids, all are maintaining their blood sugars at normal levels. Diazox-

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*Routine testing of urine in the newborn nursery should be done with Clinitest rather than more specific glucose oxidase method in order to detect reducing sustances such as fructose and galactose as well as glucose.

# ANNUAL REPORT

## Medical-Dental Staff, Wilmington Medical Center*

Norman L. Cannon, M.D., *President*

" . . . The rate of change in human affairs has been accelerating rapidly in the past 400 years. I feel sure that a doctor in the sixth century would be perfectly comfortable practicing in the eleventh century, if such time transport were possible. However, if a modern Doctor Rip Van Winkle slept twenty, ten, or even five years and was faced with resumption of practice without a refresher course, he would be in a very uncomfortable professional position; and I suspect his colleagues would wonder where he had been not to know about the latest in medical knowledge. Furthermore, his patients would quickly note his out-of-dateness because they too are pretty knowledgeable these days. We are living in a rapidly-changing society in all respects and one has to run hard just to keep up, let alone be ahead.

"Furthermore, the practice of medicine is not being conducted in a social vacuum. We, as a profession, are but one of many active forces which are shaping the future. We may be expert in the treatment of disease, but we may not have a corner on the whole truth about what is best in the way of delivering our special knowledge to the whole society in which we live . . .

" . . . Dissatisfaction is one of the strongest stimuli to change and perhaps for progress . . .

" . . . There are many groups studying the problems of health care in the United States. We doctors are being dissected and scrutinized as never before. We have our detractors and our boosters and the detractors often make the most noise. However, the criticisms cannot be denied or ignored.

" . . . If we are to develop a meaningful and productive program for the future, we cannot just oppose concepts that upset us because they may seem strange, radical, and unfamiliar. We must not drift into the future and find ourselves unprepared for what is coming through the operation of outside forces.

" . . . Medicine is not just a science in a doctor-patient isolation booth. It is a science in a complex social order. It is a science and an art to which the public feels a sense of possession. Health is not a privilege, but a right in a free society. The intelligent American citizen is not going to be satisfied with anything less than the best, not only for the rich or the well-insured, but for all classes of our society. This is a change in concept, and we have to be ready to deliver these highly skilled services in a very much more efficient and less costly way so that its benefits get to all citizens in equal measure. To do this is not going to be easy. But, when was anything worth doing, easy?"

**Excerpts of address made to the entire Medical-Dental Staff, December,* 1967.

### PITY THE POOR HIPPO

Rudyard Kipling in his *Just So Stories* explained that the hippopotamus' wrinkles came from the tremendous scratching he was forced to do after he stole someone else's cookies and got the crumbs inside his skin. Now we are told (*Today's Health*, Jan. 1968) that the poor hippo has a further dermatologic curse; he lacks the moisture conserving stratum corneum that other animals and man sport as the outer-most layer of their epidermis and is thus forced to keep his four-ton body in water all day just to keep from drying up to a paltry ton or two.

# President's Page

## WORKING CONDITIONS VERSUS MANPOWER

"Supply and training are simply one aspect of a general (health) manpower problem. If you move on the supply training side only, you will have a bag with a hole in it — you keep putting water in the top of it and it keeps coming out the bottom. Wages and working conditions . . . become an absolutely essential part of a general attack on this problem." This quote from Dr. Eli Ginsberg's address to the Health Manpower Conference sponsored by the HEW last year, points out very forcibly that low wages and poor working conditions complicate our health manpower problems, for no matter how you need their services, hospitals and nursing homes must still compete for much of their manpower.

At the professional level — where the individual has made quite an investment to acquire his skills, not only in time but in money — there is competition within the profession. Where lesser skills are involved, the health field must compete with other industries as well, for at these levels, much of the work force is interchangeable among industries.

Never in the history of this country has the health industry faced such formidable problems of recruiting, training, and retaining health workers.

We received a very ominous warning by Dr. Seymour L. Wolfbein, Dean of Temple University School of Business Administration, when he remarked at a Temple Pharmacy School conference on hospital manpower," that by 1975 that there is going to be an even more serious shortage in hospitals than ever imagined today unless plans are started now to train the unskilled and the jobless, even those who can't read or write. Health manpower today is about twenty-five years behind the times . . . The demand is overpowering for trained people and if they (hospitals) don't push programs in the next years, they will be in deep trouble. Health services administrators must go into the poor neighborhoods where the unemployed are now concentrated, and start to train them for the old and new jobs in hospitals."

Many changes have come about over the past five years in the matter of wages for hospital employees. It is not always a question of money in getting persons to work in the health field, but working conditions must be such as to compensate for the trials and tribulations to which workers are exposed. We must attempt to re-dedicate those persons taking care of the sick and injured as was the case years ago when volunteers of "Gray Ladies," did the work without compensation. Many persons scoff at the word "dedication," but this has been proven to be a very important phase of our people's lives in this country. I point to the Peace Corps. If the government can instill a sense of dedicatory response in our young people to go all over the world and work with people less fortunate than themselves for small compensation, we in the health field can attempt the same.

In the meantime, all of us must make more effective use of the manpower now available and give adequate with what we now have. One of the great problems facing us today is the problem of the nurse. What is it the nurse does and what is it she should be doing? This must be evaluated to see if we really do have the shortage we think we have. Possibly all positions within our facilities should be evaluated, from the lowest position to the top. If adequate job descriptions were written for each and every job, we might not find ourselves in the precarious shortage that we now think we are in.

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# Editorials

## CHOICE OF URINE TESTS FOR DETECTION OF GLYCOSURIA

Simple urine tests for the evaluation of glycosuria are of enormous help in the clinical diagnosis and continuing management of the diabetic. The first such method, the tablet test,[1] has in recent years often been supplanted by the more convenient dip-and-read paper tests.[2] Glucose specificity as well as easier use is considered an advantage of the paper methods but may actually not always be so. The color gradations are more susceptible to subjective error because the dip tests unlike the tablet test depend for their interpretation on evaluation of intensity of a single color and must be precisely timed for reading as their color does not remained fixed. In addition to the higher cost of the paper tape and paper strips, their greater sensitivity for glucose has some disadvantages over the tablet technique.

Unfortunately, it is not generally realized by patients or physicians that the various methods differ not only in their specificity for glucose (which in actuality is rarely of clinical importance) but also in the scale by which their results are reported. The strongest positive reaction for sugar with a paper method does not necessarily equal the glucosuria present in a specimen which gives a 4+ reaction with the tablet method. Moreover, a specimen containing a small amount of glucose may produce a strongly positive reaction by the paper method without the production of even a trace by the tablet test.

In order to clarify these differences, solutions with known quantities of glucoses were recently prepared by Mrs. Polly Pilot of the Chemistry Laboratory, Delaware Division, Wilmington Medical Center, and tested by the various available methods by laboratory personnel and the undersigned. The results obtained are charted in Figure 1.

Several useful and pertinent observations may be made from the data. In addition to a discrepancy of reporting between observers, there was a marked discrepancy between the results obtained and those theoretically expected. Also, the varying sensitivity of the different methods is well demonstrated. Even though in this experimental situation all those testing were experienced, the highly subjective nature of the decisions regarding color intensity is apparent, perhaps contributed to by the fact that the paper tape (Tes-Tape)[2] requires fixed time reading at one minute, the dip tests (Combistix, Clinistix)[3] are read

Figure 1

| % Glucose Concentration of Test Solutions | CLINITEST 1. | | | | | TES-TAPE 2. | | | | | CLINISTIX 1. | | | | | COMBISTIX 1. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | | A | B | C | D | | A | B | C | D | | A | B | C | D |
| 0.1 (1/10) | (0) | Tr | Tr | 0 | 1+ | (+) | 2+ | 1+ | 1+ | 1+ | (Light) | Drk | Drk | Drk | Drk | (Light) | D | A | R | K |
| 0.25(1/4) | (Tr) | 2+ | 1+ | 1+ | 2+ | (++) | 3+ | 1+ | 2+ | 2+ | (Light) | " | " | " | " | (Light) | " | " | " | " |
| 0.50(1/2) | (+) | 3+ | 2+ | 2+ | 3+ | (+++) | 4+ | 2+ | 3+ | 3+ | (Med.) | " | " | " | " | (Dark) | " | " | " | " |
| 0.75(3/4) | (++) | 3+ | 2+ | 2+ | 4+ | | 4+ | 4+ | 4+ | 3+ | (Med.) | " | " | " | " | ( " ) | " | " | " | " |
| 1.0 | (+++) | 4+ | 3+ | 3+ | 4+ | | 4+ | 3+ | 4+ | 3+ | (Dark) | " | " | " | " | ( " ) | " | " | " | " |
| 2.0 | (++++) | 4+ | 4+ | 4+ | 4+ | (++++) | 4+ | 4+ | 4+ | 4+ | (Dark) | " | " | " | " | ( " ) | " | " | " | " |

1. Ames Company product  2. Lilly Company product

Figures in parentheses refer to manufacturer's expected results at the particular glucose concentration.
A,B,C,D represent 4 separate testers who tested the same glucose solutions at different times.

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[1] Clinitest, Ames Co.
[2] Tes-tape, Lilly Co.
[3] Clinistix, Combistix, Ames Co.

at ten seconds and the tablet test (Clinitest) is shaken and read fifteen seconds after boiling stops. In the paper tests, color may still be changing even as it is read.

Everyone charged with the responsibility for the detection and ongoing management of diabetic states is agreed on the usefulness and importance of easy tests for spillage of sugar in the urine. The ideal method for *detection* of glycosuria may well be the more sensitive dip tests, but the most useful information regarding *control* of the known diabetic can probably still be obtained from the older tablet method.

It is most important that physicians be aware of the different grading of glucosuria among the different methods in order to appreciate the significance of positive test results.

B.Z.P.

## HIGHLIGHTS

Continued from Page 86

ide, unfortunately, has several unpleasant side effects. Of patients taking it, 50% will develop within six weeks, hirsutism of the neck, face and trunk but not of the axillary and pubic areas. Several of these patients for an as yet undelineated reason have lowered gamma globulin although this has not been associated with any increased incidence of clinical infection.

Since the incidence of symptomatic hypoglycemia may be as high as 2 per 1000 live births, it behooves all of those charged with the care of newborn and young children to be constantly on the alert for this remediable abnormality.

## PRESIDENT'S PAGE

Continued from Page 88

We are told by governmental authorities that top priority in the nation today is employment of our deprived area residents. We, in the health field, spend money for laundry, food, OB wings, etc., but no one is studying the over-all impact of the system of recruitment, wages, and above all, working conditions.

The Delaware Medical Political Action Committee (Delpac) is now engaged in its 1968 membership drive. This organization is dedicated to producing a political environment in which our public laws representatives and other representatives of organized medicine can function most effectively. I urge you to join and take an active part in Delpac so that doctors can assume their proper role of leadership in health care planning for the future.

Daniel J. Preston

## CLINICAL NOTICES AND MEETINGS

The Eighth Inter-American Congress of Cardiology has been scheduled to be held in Lima, Peru, from April 23-27, 1968, under co-sponsorship of the Inter-American and Peruvian Societies of Cardiology. Further information may be had by writing Dr. Dante Penaloza, Pablo Bermudez 274, Lima, Peru.

The American College of Clinical Pharmacology and Chemotherapy will hold its annual meeting May 2-4, 1968, at the Claridge Hotel, Atlantic City, N. J. No registration fee.

Physicians are invited to submit a title and brief abstract of material for presentation as a formal paper at the 16th annual Clinical Meeting of the American College of Obstetricians and Gynecologists to be held May 6-9, 1968, at the Palmer House, Chicago. Send abstracts to Roy G. Holly, M.D., Chairman, Committee on Program, 1025 Walnut Street, Philadelphia, Pennsylvania 19107.

# In Brief

### AMA Notes

On July 1, 1968, all practicing physicians in the U.S. will receive a questionnaire asking the number of cases in infectious syphilis, other stages of syphilis and gonorrhea treated by them from April 1 through June 30, 1968. The questionnaire card requires no signature, and replies of individual physicians will *not* be identified by name.

To keep us reminded of the seriousness of accidental poisonings, the 7th annual National Poison Prevention Week, will be observed March 17-23. This year an estimated 500,000 children will be victims of accidental poisonings. Ninety percent of all cases reported involve children under five years of age.

### "Ask the Doctor"

Speakers for April, 1968, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: April 2, Richard J. Kester, *How to Live with Schizophrenia;* April 9, Frank T. O'Brien, *Lung Cancer;* April 16, Richard Lennihan, Jr., *Tetanus;* April 23, I. Lewis Chipman, Jr., *Hiatal Hernia;* April 30, Robert McGregor, *Cancer of the Rectum and Colon.*

### Personal Glimpses

Henri F. Wendel, M.D., has been appointed a member of the Council on Environmental and Public Health of the American Medical Association . . . Other A.M.A. reappointments are: William O. LaMotte, Jr., M.D., reappointed a member of the Council on Legislative Activities . . . Lemuel C. McGee, M.D., reappointed a member of the Committee on Occupational Toxicology of the Council on Occupational Health . . . H. Thomas McGuire, M.D., reappointed a member of the Joint Committee on Mental Health in Industry and member of the Council on Mental Health of the AMA . . . William H. Duncan, M.D., has been appointed District Representative for the U.S. Military Academy in Delaware by the Academy's Office of Admissions and Registrar; he is a graduate of West Point . . . Ronald Corbalis, M.D., spoke about Delpac and Ampac at a meeting of the Delaware Association of Medical Assistants in February . . . Andrew M. Gehret, M.D., was one of the speakers addressing the public hearing on the proposed therapeutic abortion law held in Dover this past month . . . Charles Levy, M.D., was elected president of the Milton and Hattie Kutz Home, Board of Directors . . . Richard Taylor, M.D., will represent the Medical Society of Delaware at a meeting of all Chairmen of the State Committee on Medicine and Religion for a regional workshop conference which will be held March 23 at LaGuardia, N.Y. . . . Allston J. Morris, M.D., will represent the Medical Society of Delaware at the second National Congress on Socio-Economics of Health Care to be held in Chicago, March 22-23 . . . Herman J. Bennett, M.D., and C. Anthony D'Alonzo, M.D., were heard on Channel WHYY (12) in February in an alcoholic seminar . . .

### Dinner Meeting

The Delaware Academy of Medicine Research Society dinner meeting was held March 7, at the Academy. Klaus Hubben, V.M.D., spoke on *Equine Muscular Dystrophy*, with discussion by Pierre L. LeRoy, M.D., and Dewey A. Nelson, M.D.

**Diabetes News**

The Nominating Committee of the Delaware Diabetes Association announced the appointment of the following physicians, term to expire 1970: Bernadine Paulshock, Mark Cohen, Harold Tarrant, Walter Powell, Scott Ankeny, Edward F. Gliwa. Those with unexpired terms continuing as directors are: Calvin Hearne, Floyd Hudson, Edith Incababian, Francis Rovitti, Leonard Lang, Lewis B. Flinn. There are now 309 members of the Delaware Diabetes Association.

**Radio Seminars**

The Pennsylvania Hospital announces the last of its Radio Seminars, Medical Continuation Education by FM radio as follows:

April 2, 4; *Aortography in Gastro-Intestinal Disease*, Marc Mishkin, M.D., Assistant Professor of Radiology, University of Pennsylvania School of Medicine.

April 9, 11; *The Pill*, Celso-Ramon Garcia, M.D., Professor of Obstetrics and Gynecology, University of Pennsylvania School of Medicine.

April 16, 18; *'Malignant' Rheumatoid Arthritis*, Ronald A. Restifo, M.D., Associate in Medicine, Jefferson Medical College and Consultant in Rheumatology to the Office of the Surgeon General.

April 23, 25; *Recognition of Obstructive Uropathy in the Young*, John J. Murphy, M.D., Professor of Urology, University of Pennsylvania School of Medicine.

**Medical Seminars of the Medical Society**

These seminars are being held at the Nanticoke Memorial Hospital, Seaford, fom noon to 1 p.m. on the second and third Thursdays of each month:

April 9, B. Z. Paulshock, M.D., *Obesity*. A discussion of the pathogenesis of obesity. The simplest methods to rule out medical causes and the current treatment of this most common "disease" of mankind, and its relationship to heart disease.

April 16, C. R. Donoho, M.D., *Allergy-Newer Concepts*. At the very outset of the allergy season, this session will be a discussion of newer concepts in the pathogenesis of allergy and the most current recommendations for treatment.

**The Month in Washington**

**Quackery**

The AMA told Congress that weight reduction is a leading health area for quackery, particularly as so-called diet pills are involved. A physician who assumes the responsibility for treating obesity takes on a difficult role.

Reports are being investigated that some osteopaths and physicians were making large incomes from assembly-line administration of multicolored "diet" pills. Officials of Illinois and Oregon testified that such pills were involved in at least 20 deaths in their states.

The abuse of weight drugs is broken down into seven general classifications: cardiac glycosides; hormones, chiefly thyroid; diuretics; anorexiants (appetite suppressants); laxatives; sedatives; and antispasmodics.

**Birth Control**

Family planning programs of the federal government will be greatly expanded. The goal is to provide birth control information to one million women by quadrupling the size of the family planning services budget from $6 million to $24 million.

**New Officers**

At the annual meeting of the Academy of Medicine last month, the following officers were elected: *President*, Barrett G. Heckler, M.D.; *1st Vice President*, Harry J. Repman, M.D.; *2nd Vice President*, Frank M. Hoopes, D.D.S; *Secretary*, Alfred E. Bacon, Jr., M.D.; *Treasurer*, James T. Metzger, M.D. Lemuel C. McGee, M.D., was elected to the Board of Directors.

The Delaware Society of Internal Medicine at its annual meeting last month elected the following officers: *President*, William J. Vandervort, M.D.; *President-elect*, William T. Hall, M.D.; *Secretary-Treasurer*, Robert L. Meckelnburg, M.D.

## CLINICAL MEETINGS AND NOTICES

**American College of Physicians**

The ACP will present *Clinical Endocrinology — Recent Advances in Diagnosis and Treatment,* April 22-26, 1968, Mayo Graduate School of Medicine (University of Minnesota) and Mayo Clinic, Rochester, Minn. Fees are: Members, $60; Nonmembers, $100. For information, write: Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine St., Phila., Pa. 19104.

**The Handicapped Child**

All persons interested in the Handicapped are invited to attend the Sixth Annual conference on the Handicapped Child which will be held at the Alfred I. DuPont Institute on May 11, 1968, beginning at 9:30 a.m. The subject is *Minimal Brain Dysfunction in Children,* considered from three aspects: medical, psychological and educational.

**Neuropsychiatric Institute**

The Eleventh Neuropsychiatric Institute, co-sponsored by the Jefferson Medical College and the Veterans Administration Hospital, Coatesville, will be held April 26, 1968, at the Coatesville VA Hospital. The topic will be *Alcoholism.*

**Jefferson Symposium**

The Jefferson Medical College will present a symposium, April 19-20, 1968, titled, *Advances in Gynecologic Endocrinology*, at the college in Philadelphia. The fee will be $35 for practicing physicians and half price for interns and residents. For information, write: John H. Killough, Ph.D., Assistant Dean, Jefferson Medical College, 1025 Walnut St., Phila., Pa. 19107.

**Medical and Chirurgical Faculty of Maryland**

The Annual Meeting of the Medical and Chirurgical Faculty of Maryland will be held Wednesday, April 17, at the Alcazar, Baltimore, Md. All physicians and paramedical personnel are invited to attend the above session; no registration fee; credits given by Academy of General Practice.

There will also be sessions from April 21-28 which will be held aboard the SS Argentina during a 7-day cruise convention from Baltimore to San Juan and St. Thomas and return. All those interested may contact John Sargeant, Executive Secretary.

**PG Courses on Fractures and Other Trauma**

The Twelfth Annual Post Graduate Course on Fractures and Other Trauma, sponsored by the Chicago Committee on Trauma, the American College of Surgeons, will be held April 17-20, 1968, at the John B. Murphy Memorial Auditorium, 50 East Erie St., Chicago, Ill. 60611. Registration fee: $80, residents and interns admitted free by letter from Chief of Service. Course is designed for general surgeons, specialists, and general physicians. This program is acceptable for 28½ elective hours by the AACP.

**Home Care Training Activities**

The Home Care and Extended Services Department announces the 1968 Winter-Spring Calendar for Training Programs in Coordinated Home Care:
May 8-10, Seminar — Administrative Functions in Home Health Agencies; June 10-28, Training Program. For information, write, Director, Training Programs in Home Care, Montefiore Hospital and Medical Center, 111 East 210 St., Bronx, New York 10467.

# Delaware Academy of General Practice

## GRADUATE MEDICAL TRAINING FOR FAMILY PRACTICE

The single most important phase in the setting-up of a new specialty is the development of graduate training programs which teach skills and techniques and their utilization in that branch of medicine. The goal of graduate training programs in family practice must be to produce competent family physicians.

It is evident in studying other specialties that the spectrum of skills and techniques utilized by this specialist must necessarily overlap those of other specialties. This will be even more evident in family medicine, which will encompass health care for all major events of the family — birth, infancy, childhood, adolescence, aging, trauma, illness and death. By necessity the man in family practice must be able to hold his own in pediatrics, medicine, obstetrics, some surgery and psychiatry and other related fields.

Such a family practice graduate training program must include as its main feature a successful model for the delivery of medical care to the family. The physical facilities for both ambulatory and inpatient care are a necessity, placing most of the emphasis on the ambulatory phase which constitutes about 95 percent of family practice. The physical facilities of the community hospital outpatient department will probably create the best atmosphere of a family physician's office. Facilities should be available for teaching in the following areas: laboratory screening, office x-ray, sigmoidoscopy, electrocautery, physical therapy, electrocardiography, and some surgery. Adequate patient records and filing systems must be kept in the department.

The hospital practice of inpatient service may be taught under several organizational patterns. These include: 1. A family practice service having privilege of admission on all the various services for patients that are within its scope of practice; 2. A separate family practice inpatient service with its own beds for the majority of patients within the scope of family medicine; 3. A working combination of both which prevents duplication, ie, obstetrics and pediatrics.

This service should be available to families from all walks of life — not the destitute, indigent patients alone. Many of these could be suggested by practicing physicians in the community who work within the department as teachers on a part-time basis.

The teaching personnel should include a full-time director of the program and as many part-time men as the size and scope of the program dictates. The assistance of allied health facilities in the community would tend to round out the entire picture. Many of the skills, techniques, and procedures of the traditional disciplines may actually be learned in consultation with other specialists on family practice patients as various health problems are presented. In attempting to determine how much time should be spent in learning the skills and techniques of the other specialties, certain broad generalizations may be stated. The facilities of the other programs and the positions available within their scope will determine the number of residents undergoing training at any one time. A vigorous, well-run family practice residency program should be the aim of all good teaching and community hospitals if we are to supply to the American public the number of knowledgeable family physicians they need. This is no small project and must not be undertaken lightly; and it requires the joint cooperation of all medical specialties.

Of course, the implementation of these ideas into the Wilmington Medical Center must necessarily await the outcome of the American Academy of General Practice application to AMA for board certification. To date this is not yet a reality; but careful, diligent thinking about the inception of such a program can never start too soon.

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

### **Furosemide** *Impaired Glucose Tolerance*

Impairment of glucose tolerance, a known side effect of thiazide diuretics, has now been observed in patients receiving furosemide. It is suggested that periodic checks be made on urine and blood glucose in furosemide treated patients who have previously shown impaired glucose tolerance while being treated with thiazide diuretics. — Jones, I. G. & Pickens, P.T. (Cardiff Royal Inf., Cardiff, Wales), The Pract. 199: 209 (Aug.), 1967.

### **Dilantin-Analexin** *Concurrent Administration*

Phenyramidol (Analexin-Neisler) inhibits the metabolism of diphenylhydantoin (Dilantin-PD & Co.) When the two drugs are given concurrently the half-life of Dilantin is doubled and plasma levels are significantly increased. Concurrent administration of Analexin and Dilantin should be avoided. — Solomon & Schrogie (Baltimore, Md.), Clin. Pharmacol. & Therap. 8:554, 1967.

### **Pontocaine Respiratory Tract Anesthesia**

One of the most important factors in the cleansing mechanism of the respiratory tract is the transportation of mucus by ciliary action. Observations made in animals and in tracheostomized human subjects showed that Xylocaine (lidocaine hydrochloride-Astra), 4%, does not impair mucus flow, whereas Pontocaine (tetracaine hydrochloride-Winthrop), 2%, causes immediate and complete cessation of ciliary action and mucus flow. Pontocaine should not be used for surface anesthesia in the respiratory tract.

Ewert (Stockholm, Sweden), Ann. Otol., Rhinol. & Laryngol. 76:359 (June), 1967.

### **Ritalin-Guanethidine** *Cardiac Arrhythmia*

Sympathomimetic agents are contraindicated in patients receiving guanethidine because of the possibility of inducing cardiac arrhythmia. Other drugs, reputed to be relatively free of adrenergic effects, may be equally hazardous in combination with guanethidine. A 60-year-old hypertensive under treatment with guanethidine was given 5 mg methylphenidate (Ritalin-Ciba) daily for three days, then 10 mg daily for two days. Ventricular tachycardia developed and the blood pressure fell to 90/80 mm Hg. The patient responded to withdrawal of previous medication and the administration of procainamide. Ritalin possesses insignificant adrenergic action but the drug has been reported to potentiate the effects of sympathetic amines. The present case suggests that, like the sympathetic amines, Ritalin induces disturbances of rhythm in a myocardium sensitized by guanethidine. (Deshmankar, B.S. & Lewis, J.A.

Westminister Hosp. (D,V.A.), Box 3701, Term A, London, Ontario (Dr. Lewis). Canad, M.A.J. 97:1166 (Nov. 4,) 1967.

### **Hypnotic Activity of Placebo in Relation to Severity of Insomnia: A Quantitative Evaluation**

Data obtained in a controlled clinical trial, carried out on 78 psychiatric patients, are presented as a contribution to the quantitative evaluation of the relationship between the effects of placebo and drugs at a given dose and the severity of the clinical condition being treated. In these patients, suffering from insomnia of different severities, satisfactory sleep after administration of placebo was demonstrated to decrease significantly with increasing pretreatment severity of the symptom. Furthermore, the differences in hypnotic activity between placebo and 100 mg phenobarbital were almost nil in mild insomnia and increased significantly with increasing severity of insomnia. On the basis of these data, it is felt that some cases of mild insomnia may be better treated with placebo than with active drugs. Furthermore, clinical trials of hypnotic drugs appear to be more generally efficient if carried out with patients suffering from severe insomnia.

F. B. Nicolis and L. G. Silvestri, Milan, Italy. Department of Biometrics and Medical Statistics, Univ. of Milan, Medical School. Clinic. Pharmacol. and Ther. Vol. 8, No. 6 Nov-Dec. 1967, Pg. 841.

# Auxiliary Affairs

## AUTOBIOGRAPHICAL SKETCH OF SUSSEX COUNTY PRESIDENT — Mrs. Joseph A. Elliott

Somehow, it seems to me that if a person is born in Texas, then deep down inside they always think of themselves as Texans, no matter how far removed they may be, or how long ago they left. It has been quite a while since I lived in Ft. Worth, and of course, long since have lost any trace of an accent of that region.

I gradually moved North and East as I grew up. At the beginning of my high school years, my father, who was in the oil industry, was transferred to Parkersburg, West Virginia. Enroute, we lived for a year in Coffeyville, Kansas, famous for one of Jesse James' last bank robberies.

I attended Lindenwood College for Women, near St. Louis, Missouri, for two years after which, I persuaded my father to let me transfer to the University of West Virginia. In 1949, I graduated from the University.

The first year after my graduation, I worked in a local bank. Next door to my family lived a doctor who had attended Western Maryland College in Westminister, Maryland. When he discovered that one of the residents in the Parkersburg General Hospital had also gone there to school, he invited a red-headed young man to dinner. And as the girl next door, I made the perfect partner for dinner. We were married at the end of my redhead's residency. My name changed from Mary Louise Evans-Lombe to Mrs. Joseph A. Elliott, bride and daughter-in-law of general practitioners.

We moved to Laurel, Delaware, where my husband joined his father, Dr. J. R. Elliott, in general practice and surgery. For a year, I helped my husband as a receptionist in his office. During this time, there was the cold war in Korea. My husband enlisted in the Air Force and left soon after for his assignment in the Azores. When our son Joe, Jr., was 6 months old, he and I were able to join Dr. Elliott.

Our second son, David, was born back in the United States, shortly before my husband's enlistment was up. When he was released, he returned to Laurel, where he joined his father in general practice, again. We also have a third son, Mark, who was born in 1956. All three boys were delivered by their grandfather.

For a number of years, I have been active in civic affairs. I have held offices in the Cub Scouts (local council), Laurel New Century Club, Trustee for Christ Methodist Church, United Fund, and other charitable organizations. These account for a part of my activities outside of our home. For the past several years I have been an officer in the Woman's Auxiliary to the Sussex County Medical Society. In 1967, I accepted the presidency for two years.

Also in 1967, our family decided to apply for an A. F. S. exchange student. We were accepted and now have a daughter, Catherine Redei, from Melbourne, Australia. Cathy is a full fledged member of our family, now. It is quite a wonderful experience for all the boys in the family to have a sister, and for Joe and I to have a daughter. We feel that we have gained her permanently in our hearts, if only for a year in our home.

We like living in a small town and feel fortunate to be raising our family in a town such as Laurel.

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# THE DYNAMICS OF ANTIBIOTIC STAPHYLOCOCCI WITH SPECIAL REFERENCE TO SENSITIVITIES OF THE SYNTHETIC PENICILLINS

**• The almost total lack of resistance by staphylococci to the synthetic penicillins has been adequately proven in this study. If sampling is carefully controlled, results may provide data on which therapy may be initiated.**

L. J. Griffith, Ph.D.
W. E. Ostrander,* D. E. Beswick*
C. G. Mullins,* M. F. Sargent*

The monitoring of antibiotic sensitivities of staphylococci submitted to the Veterans Administration phage typing center covered the period August 1957 to September 1965. This study was originally undertaken to determine what effect antibiotic restriction and withdrawal had on the sensitivities of organisms. Originally, the sampling of strains submitted to our laboratory for study included 41 hospitals which were geographically distributed over most of the United States east of the Mississippi River and from California, particularly from the Los Angeles area. During the last three years of the survey, the sampling has been more restricted, but generally in the New England area, including New York State, and the Los Angeles area.

*For Editorial Comments
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The data collected has received wide distribution and has served as a guide for antibiotic therapy where resistant staphylococci have been a problem. Preliminary results of this study have been presented elsewhere.[1] The purpose of this study was to identify changing antibiotic sensitivity patterns with changing antibiotic use. Since the introduction of the synthetic penicillins, the study has also included an effort to monitor the emergence of resistance and to study the significance of the resistant strains.

## Materials and Methods

Staphylococci from the various hospitals throughout the country were submitted on agar slants to the Infectious Disease Laboratory. All strains were identified as to their origin and other pertinent clinical data. After ascertaining their purity, by subculturing when necessary, they were inoculated into trypticase soy broth in preparation for phage typing. Phage typing was completed using the international set of phages by the methods recommended by Blair and Carr.[2] In addition, coagulase tests were repeated by the

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Dr. Griffith was formerly Director of the Infectious Disease Research Laboratories and is now Microbiologist, V.A.H., Wilmington, Delaware.

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*With the Infectious Disease Research Laboratories of the Veterans Administration Hospital, Batavia, New York.

micro method,[3] and sensitivity tests were conducted using the agar disc diffusion method.[4] Blood agar plates employing 3% human blood were employed for the sensitivity testing. Inoculum for the sensitivity plates was applied by the swab method and adjusted so that a fine granular growth was obtained on the surface of the plate. Where available, both a high and low concentration disc was employed. In particular, the demonstration of any resistance to the newer synthetic penicillins was noted, and in any case where resistance was shown, the test was repeated and as much clinical information as possible was obtained from the patient from whom the organism was derived. Minimum inhibitory concentrations were performed by the tube method to confirm the disc test. An attempt was made to correlate the development of resistance to the synthetic penicillins with prolonged ther-

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Table 1

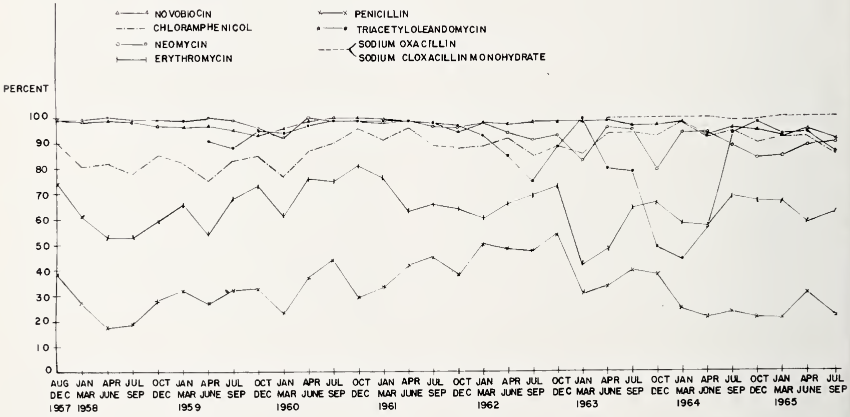
Overall Susceptibility of Staphylococci to Antibiotics

(1957 - 1965)

| Antibiotic | Percent | Antibiotic | Percent |
|---|---|---|---|
| *Penicillin | 30.0% | *Neomycin | 97.6% |
| *Tetracycline | 46.2% | *Bacitracin | 97% |
| *Dihydrostreptomycin | 47.5% | *Novobiocin | 97.3% |
| *Erythromycin | 63.6% | ‡Sodium Oxacillin | 99.7% |
| ***Triacetyl- Oleandomycin | 86.8% | §Sodium Cloxacillin Monohydrate | 99.7% |
| *Chloramphenicol | 87% | †Methicillin | 100% |
| **Kanamycin | 89.3% | | |

*8668 Cultures Tested from August 1957 to October 1965
**7138 Cultures Tested from July 1958 to October 1965
***5745 Cultures Tested from April 1959 to October 1965
†4270 Cultures Tested from March 1961 to October 1965
‡2907 Cultures Tested from January 1963 to October 1965
§2660 Cultures Tested from August 1963 to October 1965

Figure 1



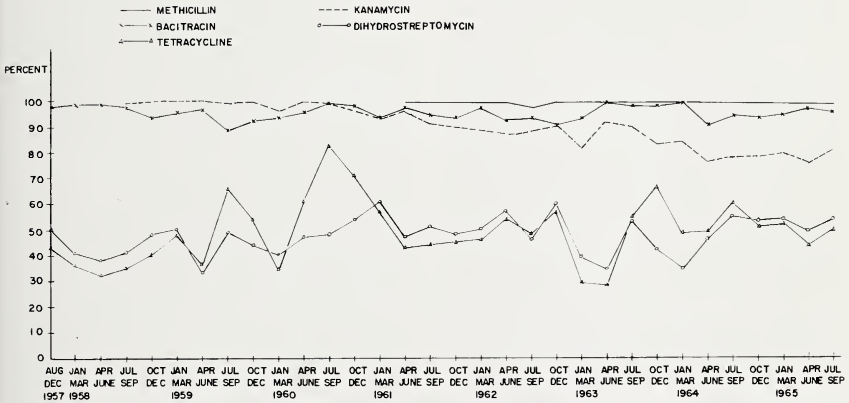
Susceptibility of Staphylococci Studied between August 1957 and September 1965 expressed as Percent.

Table 2

SUSCEPTIBILITY OF PHAGE TYPES TO SEVERAL ANTIBIOTICS (Expressed as Percent)

| | 80, 81 | | | | | | 52A, 52, 80, 81 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antibiotic | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 |
| Penicillin | 3 | 3 | 6 | 3 | 7 | 6 | 21 | 43 | 38 | 31 | 16 | 23 |
| Chloramphenicol | 92 | 99 | 93 | 89 | 99 | 94 | 94 | 97 | 98 | 100 | 96 | 97 |
| Tetracycline | 50 | 14 | 10 | 17 | 14 | 13 | 61 | 57 | 60 | 42 | 36 | 39 |
| Erythromycin | 64 | 32 | 22 | 17 | 29 | 24 | 67 | 77 | 76 | 46 | 57 | 44 |
| Novobiocin | 100 | 98 | 97 | 89 | 96 | 97 | 100 | 100 | 96 | 100 | 98 | 97 |
| Triacetyl-oleandomycin | 97 | 89 | 76 | 64 | 68 | 64 | 100 | 96 | 82 | 73 | 81 | 80 |

Figure 2



Susceptibility of Staphylococci Studied between August 1957 and September 1965 expressed as Percent.

apy with the same or similar synthetic penicillin. In patients who had been on long-term therapy with synthetic penicillins, attempts were made to isolate staphylococci from them which might display increased resistance. Pathogenicity of the isolated strains was tested in mice.

**Results**

The data for 7¾ years showing the percent of susceptibility are given in Table 1. The first synthetic penicillin extensively studied was methicillin. It is noteworthy that from the end of March 1961 through September 1965, extremely little resistance has developed against the antibiotic. Other antibiotics, such as penicillin G, the tetracyclines, streptomycin and erythromycin, which have been used more extensively show by the reduced percentage of susceptibility the effects of bacterial selections with resultant decrease in sensitive strains. Other synthetic penicillins which have been used for lesser periods of time, such as oxacillin and cloxacillin, reacted almost identically to methicillin.

Figures 1 and 2 show the fluctuations occurring at each three-month interval from August 1957 through September 1965. Those antibiotics which have had most contact with staphylococci present the greatest fluctuations in their percent of sensitivity strains. As with the overall report, extremely little fluctuation has been noted with the individual synthetic penicillins. Phage types, 80, 81 & 52A, 52, 80, 81 showing resistance to various antibiotics is presented in Table 2. No typable strains have been encountered which were resistant to any of the synthetic penicillins. A detailed study of the resistant strain or isolations from patients being treated with the synthetic penicillins illustrates the following: (1) Staphylococci exhibiting an increased minimum inhibitory concentration to the synthetic penicillins may be isolated from patients who have received large amounts of any of the synthetic penicillins over a prolonged period. (2) Staphylococci resistant to synthetic penicillins have also been isolated in a few cases from patients who have never received any synthetic penicillin therapeutically. The latter organisms seem to have occurred spontaneously and their occurrence seems to be a function of the normal mutation process. These patients, so far as can be ascertained, have also had no contact with other patients who have been treated for staphylococcal disease with any of the synthetic penicillins.

In the case of those patients on prolonged therapy, it is not unusual to find that the patient has been completely freed of the primary etiological agent for which therapy had been initiated. However, it may be possible to isolate staphylococci, especially from the skin, which are resistant to the synthetic penicillins and are not the same organism as the etiological agent. As an example, several patients have been extensively studied who had received from 60 to 300 grams of synthetic penicillin. Penicillin-resistant organisms may be obtained rather easily from the skin of these patients. The pathogenic potential of the organisms which have been isolated from the skin of patients being treated with synthetic penicillin seems to be reduced. These natural-occurring penicillin resistant organisms have many of the same characteristics as the synthetic penicillin resistant ones produced in the laboratory. They grow poorly, and it requires from two to three times the ordinary lethal dose to kill mice when injected intraperitoneally.

## Discussion

In an examination of Figures 1 and 2 it is evident that the drug sensitivities fall into three distinct groups. (1) Those antibiotics which have been widely used and show fluctuating sensitivities; penicillin G, tetracyclines, streptomycin and erythromycin. (2) Those antibiotics which have been used rather widely but to which relatively little resistance has occurred; chloramphenicol, triacetyloleandomycin and novobiocin. Two additional antibiotics which might also be added to this category are neomycin and bacitracin, since very little resistance has developed against these two agents. (3) Those antibiotics which are of rather recent origin and to which little resistance has developed. In this class we might put kanamycin and the synthetic penicillins.

During the early spring and summer of 1958, staphylococci from the hospitals which were being extensively studied showed the lowest susceptibility to penicillin G. It was also true at that time that the rate of the so-called drug-resistant post-operative infections reached a maximum level. From 1958, when staphylococci were least susceptible, penicillin G in particular seemed to have been used more judiciously until the end of 1962 when a decided decline in sensitivity became evident. For the last year, the number of penicillin-susceptible staphylococci has been decreasing and now has leveled off at a figure about equal to that in 1958. These kind of data would seem to indicate that the staphylococci sent to us for study have been in contact with considerable penicillin and that these resistant strains represented significant epidemic potential had not the synthetic penicillins become available. Although streptomycin and tetracycline have fluctuated in the percent of sensitive staphylococci seen, the figure for the last year of the study does not vary significantly from that recorded in 1957. This would seem to indicate the use of the tetracyclines and streptomycin, in contrast to penicillin, has been more rigidly controlled.

With the introduction of the synthetic penicillins about 1960,[5,6] there was considerable apprehension that resistance would soon occur as had happened with many of the other antibiotics. In fact, it was not long before two different kinds of resistance were reported to methicillin, the natural occurring kind reported by Jevons[7] and the artificially induced resistance reported by Barber and others.[8–12] The exact mechanism of each of these resistances is still not completely explained. However, the production of an enzyme, amidase, may be responsible for part of the natural occurring type of methicillin resistance.[13] In spite of the fact that exceedingly large amounts of the synthetic penicillins have been used, as in some cases where the antibiotic has actually been sprayed in pediatric wards, surprisingly little resistance has occurred.[14–16] Although both kinds of resistance have been reported, large-scale epidemics which compare with those seen during the time of the epidemics due to staphylococci which were penicillin G-resistant, have not manifested themselves.[17] This may be due to the fact that these staphylococci are of reduced virulence.[12] The methicillin-resistant forms may be progeny of previously susceptible and phage typable staphylococci, but there is also considerable evidence that these resistant strains have many of the characteristics of the staphylococci derived from the skin. It is possible to isolate resistant staphylococci from the skin of patients who have been on long-term methicillin or some other synthetic penicillin therapy. The significance of these resistance forms has not been investigated, but they may possess a genetic factor capable of initiating conjugation and controlling simultaneous transfer of resistance to several antibiotics to other pathogenic staphylococci.

## Summary

Results of a 7¾ year study of staphylococcal phage types and drug sensitivities are reported. The effect of antibiotic restriction on bacterial sensitivities was demonstrated with penicillin G. The failure of staphylococci to develop broad resistance to the synthetic penicillins has been adequately demonstrated. In these strains showing significant resistance, pathogenicity appears to be minimal. The possibility of resistance transfer to other pathogenic staphylococci was considered.

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### ACKNOWLEDGMENT

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## Birth Control in Mosquitoes

The limits of biologic research have never been defined. Dr. George Craig, researcher at Notre Dame, has discovered that the female yellow fever mosquito, although promiscuous, never produces illgitimate larvae. Her first mate deposits, along with his sperm, a gluey substance that closes her reproductive tract to all subsequent impregnation. Dr. Craig has named this special mosquito contraceptive *matrone* because it changes a young, maiden mosquito during her first mating into a matron.

— Claude Bernard

# OPENING THE WAY TO IMPROVED VA-COMMUNITY MEDICINE RELATIONSHIPS

**• A summary of recently enacted health-related federal legislation which has significance to VA as well as to community hospitals.**

Harry Walkup, M.D.

The 89th and 90th Congresses of the U. S. enacted several Public Laws that could, with proper implementation, broaden the scope of the VA's cooperation with its medical community. In general, the legislation was designed to provide the best possible medical care to every segment of the nation's population. Other, but equally important, objectives were to prevent unnecessary duplication of medical resources in a community, and to assist the community in overcoming existing manpower shortages in health service fields. With these objectives in mind the following Public Laws are enumerated with suggestions as to their practical implementation where appropriate.

1. *Public Law 89-239 (October 6, 1965)* Heart Disease, Cancer, and Stroke Amendments of 1965. This law amended the Public Health Service Act (42 U.S.C. Ch. 6A) by adding Title IX — Education, Research, Training, and Demonstrations in the fields of Heart Disease, Cancer, Stroke and Related Diseases.

The purposes of this title are:

"a. Through grants, to encourage and assist in the establishment of regional cooperative arrangements among medical schools, research institutions, and hospitals, for research and training (including continuing education) and for related demonstrations of patient care in the fields of heart disease, cancer, stroke, and related diseases;

"b. To afford to the medical profession and the medical institutions of the nation, through such cooperative arrangements, the opportunity of making available to their patients the latest advances in the diagnosis and treatment of these diseases; and

"c. By these means, to improve generally the health manpower and facilities available to the nation, and to accomplish these ends without interfering with the patterns, or the methods of financing, of patient care or professional practice, or with the administration of hospitals, and in cooperation with practicing physicians, medical center officials, hospital administrators, and representatives from appropriate voluntary health agencies."

*Comment:* The State of Delaware has been included in a region that encompasses a large portion of the State of New Jersey and Northeastern Pennsylvania. The program is known as the Greater Delaware Valley Regional Medical Program and is under the coordination of William C. Spring, Jr., of Bala-Cynwyd, Pennsylvania. The effects of this program will directly or indirectly be felt by every practicing physician in the State of Delaware. Since this is a community type of program, the VA's involvement will be on an

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"invitational" basis only, and we will depend on our community medical leadership for sound direction and practical program planning.

2. *Public Law 89-749 (November 3, 1966)* Comprehensive Health Planning and Public Health Services Amendment of 1966. The findings and declaration of purpose of this law are:

> "a. The Congress declares that fulfillment of our national purpose depends on promoting and assuring the highest level of health attainable for every person, in an environment which contributes positively to healthful individual and family living; that attainment of this goal depends on an effective partnership, involving close inter-governmental collaboration, official and voluntary efforts, and participation of individuals and organizations; that federal financial assistance must be directed to support the marshalling of all health resources — national, state, and local — to assure comprehensive health services of high quality for every person, but without interference with existing patterns of private professional practice of medicine, dentistry, and related healing arts.
>
> "b. To carry out such purpose, and recognizing the changing character of health problems, the Congress finds that comprehensive planning for health services, health manpower, and health facilities is essential at every level of government; that desirable administration requires strengthening the leadership and capacities of state health agencies; and that support of health services provided people in their communities should be broadened and made more flexible."

*Comment:* This plan is state-oriented in that the federal government will pay a "share" of the expenditure incurred each year by the State health authority or, with respect to mental health services, by the State mental health authority providing the services. One advantage this legislation has over P.L. 89-239 is its emphasis on the ability of state and local governments to have a voice in their self-determination with priorities being established at the "grass roots" level without the "categorical disease" restrictions of the other act (ie, heart disease, cancer, stroke). Of practical importance would be the development of health related manpower under the Training Studies and Demonstrations provisions of this law.

3. *Public Law 89-785 (November 7, 1966)* Veterans Hospitalization and Medical Services Modernization Amendments of 1966. This bill was enacted to amend Title 38 of the U. S. Code to clarify, improve, and add additional programs relating to the departments of medicine and surgery of the Veterans Administration. The important provisions of this act are:

a. Training and Education of Health Service Personnel, "In order to more effectively carry out the functions of the Department of Medicine and Surgery, the administration shall carry out a program of training and education of health service personnel, acting in cooperation with schools of medicine, dentistry, osteopathy, and nursing; other institutions of higher learning; medical centers; hospitals; and such other public or nonprofit agencies, institutions, or organizations as the administrator deems appropriate."

b. Sharing of Medical Facilities, Equipment and Information. "It is the purpose of this sharing provision to improve the quality of hospital care and other medical service provided veterans under this title, by authorizing the administrator to enter into agreements with medical schools, hospitals, and research centers throughout the country in order to receive from and share with such medical schools, hospitals, and research centers the most advanced medical techniques and information, as well as certain specialized medical resources which otherwise might not be feasibly available or to effectively utilize other medical resources with the surrounding medical community, without diminution of serv-

> ices to veterans. Among other things, it is intended, by these means, to strengthen the medical programs at those Veterans' Administration hospitals which are located in small cities or rural areas and thus are remote from major medical centers. Eligibility for hospital care and medical services furnished any veteran pursuant to this section shall be subject to the same terms as though provided in a Veterans' Administration facility, and provisions of this title applicable to persons receiving hospital care or medical services in a Veterans' Administration facility shall apply to veterans treated hereunder."

*Comment:* P.L. 89-795 removed all barriers that heretofore restricted VA's active involvement in community medicine. It is interesting that the VA plays some role in the education of 60% of the nation's medical specialists, yet prior to the enactment of this law, our large medical education program did not carry official congressional sanction. This act not only sanctions medical education but provides for the VA to contribute its share to the training of the communities' health-related manpower.

The medical resources sharing provision of this act allows close coordination with our community to prevent costly duplication of expensive medical equipment. Authorization to actually admit non-veterans under such a sharing agreement represents a major step forward toward the practical implementation of this program.

4. *Public Law 90-31 (June 1967)* Authorization for the U. S. Public Health Service to fund projects of research, education and patient care demonstrations in hospitals of the Veterans Administration.

*Comment:* Heretofore, NIH grants for reresearch and education could not be made directly to a VA hospital. Such federal grants could be utilized in a VA hospital if awarded to an affiliating medical school and if such programs were carried out under the direction of that affiliating institution. Under P.L. 90-31, physicians in the community and VA personnel can combine talents, submit NIH grant requests and if such grants are approved, they can be funded directly to the VA, providing the collaborative research was to be carried out in that VA hospital's research laboratories.

### Summary

A series of recently enacted Public Laws have been presented to acquaint the Delaware medical community with their existence, magnitude and scope. Discussions of these laws are of necessity brief, but an effort has been made to include enough information to thoroughly familiarize the practicing physician with their objectives and the intent of the Congress of the United States in their enactment. Particular attention is focused on Public Law 89-785 which has far-reaching significance insofar as the incorporation of the VA hospital into the mainstream of the community medicine is concerned. The administrative officials of the Wilmington VA hospital, with the support of their Chief Medical Director in the VA Central Office, Washington, D. C., are eager to implement the "sharing provisions" of this Public Law wherever such sharing will serve in the best interest of our community and its medical profession, without restricting in any way our primary mission of veteran-patient care.

## CLINICAL NOTICES AND MEETINGS

The 202nd Annual Meeting of the Medical Society of New Jersey will be held at Haddon Hall, Atlantic City, May 18-22, 1968. All members of our society are invited. There is no registration fee for non-member physicians.

The first International Symposium on Dextrans will be held on May 19-20, 1968, at the Flagship Hotel on Galveston Island, Texas. The subject is entitled, *Current Concepts of the Basic Actions of Dextrans and their Clinical Application in the Cardiovascular and Related Fields.*

# SIMULTANEOUS RECORDINGS OF MONKEY ELECTROCORTICOGRAMS AND ELECTROCARDIOGRAMS

**• Animal electrocorticograms and electrocardiograms are useful tools for evaluating the effects of drugs and other experimental treatments. A simple technique is described for preparing chronic monkey preparations with permanent, indwelling recording electrodes.**

Franklin M. Taylor
Chester Wilpizeski, Ph.D.

The investigation of many biomedical problems requires the monitoring of brain and heart activity from waking, unrestrained animals. Through the years, numerous techniques have evolved for preparing animals with permanently implanted electrodes capable of giving reliable EEG and EGG records of good quality over long periods of time. The basic strategy for electrode implantation has been known for many years. (Delgado, 1964, gives a short history of the subject beginning as early as 1898 with Ewald's use of ivory sleeves screwed into the skull.)[1] The descriptions of these procedures are usually general and often vague, and the details are left to the individual researcher's imagination. Experience has shown that a thorough mastery of the details can spell the difference between success and failure in obtaining usable, reliable records of heart and brain potentials. Even the selection of necessary hardware and components can be important for good results.

Electrical activity originating from the brain can be recorded from two sources: (a) electrodes temporarily stuck to the scalp, or (b) electrodes in contact with the cortical surface or inserted within it. The latter is preferred and is differentiated from the former (EEG) by means of the term electrocorticography ($EC_oG$). $EC_oG$s have less artifact associated with them because of their relative immobility and their localization within the source of electroactivity and near-isolation from scalp and muscle effects. Recently, Goldensohn (1963)[2] showed that even paroxysmal electrical activity associated with clinical seizure phenomena is often not apparent in the scalp-lead EEG record. The EEG is only about 1/10th the amplitude of the $EC_oG$ due to parallel tissue resistance and short circuiting of the electrodes causing distortion of the equipotential fields (Bures, Petran and Zachar, 1960).[3] Throughout this paper, however, the term EEG will be used as a general referent because of its established familiarity.

Electrode configuration, as well as a choice of reference, depends upon the particular aims of the investigator. In our present brain work electrodes are located in the frontal and parietal/occipital areas of the right hemisphere. The animal is grounded through an electrode above the sagittal sinus, and recordings are made bipolar.

Electrocardiograms can also be obtained from either the surface of the body or from the heart tissues themselves. Currently, our

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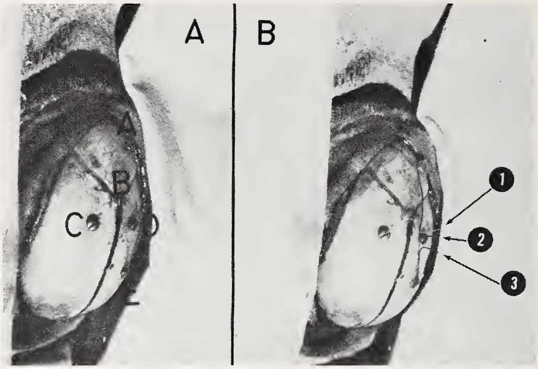

Figure 1A. Squirrel monkey head after retracting the scalp, muscle and periosteum. Screw A is the frontal electrode; B, the ground; and E, the parietal. Screws C and D serve as anchors for cementing the electronic receptacle. Figure 1B shows the attachment of connecting wire jumpers which are later crimped into contacts in the receptacle. Wire 1 is the ground lead; 2, the frontal; and 3, the parietal.

ECG records are taken through bilateral subdermal wire-loop electrodes sutured to the chest wall and straddling the mid-line.

The aim of this paper is to describe a relatively simple and successful technique for preparing squirrel monkeys with permanent, indwelling cortical and chest wall electrodes for use in central nervous system and cardiovascular research. These procedures can be carried out in small biomedical laboratories having only modest surgical and instrumentation facilities.

### Cortical Electrode Placement

After the animal attains a surgical level of anesthesia, the hair is clipped from the entire head and area from neck to midabdomen. The head is firmly fixed by means of a stereotaxic head holder, and the surgical areas cleansed with 70% isopropyl alcohol followed by zephiran tincture solution.

A mid-line incision is made from the forehead to occiput. A dry, bloodless field is created by retracting the scalp laterally and pushing aside the muscle and periosteum with any suitable elevator.

Burr holes are drilled through the skull by means of an electric powered hand drill (Moto-tool, Model 2) and 3/64th bit. Stainless steel flat-head machine screws (0-80, ⅛th inch length) are immediately driven into the burr holes until their tips come into light contact with the dura mater. The screws serve both as electrodes and anchors for cranioplastic cement. Figure 1A shows the location and placement of screws. Screws A and E are the bipolar electrodes and are positioned 2 cm anterior and posterior from bregma and 1 cm lateral from the sagittal suture. Failure to drive the screw tip down to the dura often results in pickup of 60 cps artifact. Screw B is placed on the midline just above the sagittal sinus and serves as a common ground. Screws C and D function as anchors, although they can be used as additional electrodes if desired.

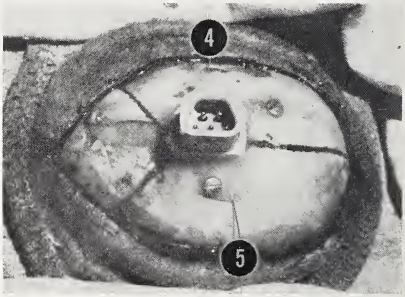

Figure 2. The plastic receptacle is firmly cemented to the skull and screw heads with self-curling acrylic. Wires 4 and 5 are later passed subdermally down to the chest wall, where they serve as ECG electrodes.

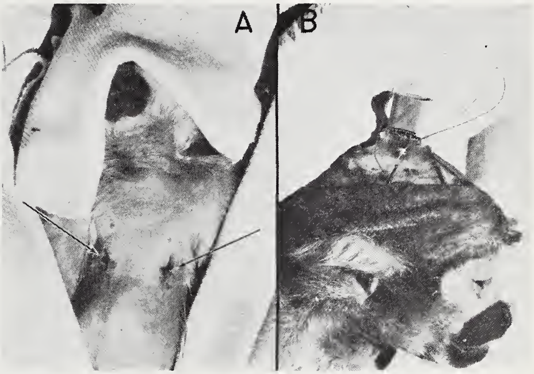

Figure 3A. Arrows point to the incisions necessary for attaching ends of ECG electrode wires. Figure 3B. Monkey head with receptacle cemented in place. The ECG electrode wire is passed down the suction tip and out the chest incision.

Next, three 3-cm lengths of teflon coated platinum alloy wire (Medwire, .007 inch diameter) are bared at both ends, and one end of each is wrapped around the shanks of screws A, B and E (Figure 1B). Any blood or fluid surrounding the screw heads must be suctioned away before the wire-screw junction is encapsulated with self-curing acrylic cement (Justi powder and catalyst). Care must be taken not to allow uncured cement to run onto skin or muscle; this causes eventual erosion of the tissue. After the cement has hardened, the free ends of the wires are crimped into female contact pins (Amphenol 220-SO2) inserted into a micro-miniature 5-contact electronic receptacle (Amphenol "Tiny Tim," 223-1205). Wires from screws B, A and E are connected to pins 1, 2, and 3, respectively. The bared ends of two 15-cm long platinum alloy wires are crimped into pins 4 and 5 and are allowed to hang freely astride the head. At this stage the entire receptacle and connecting-wire superstructure is cemented to the skull and screw heads (Figure 2).

**ECG Electrode Placement**

When the acrylic is hard and transparent the ECG electrodes are implanted. A small skin incision is made about 2 cm below each nipple as shown in Figure 3A. A 20 gauge angled suction tip with obturator is pushed into the incision between the skin and chest

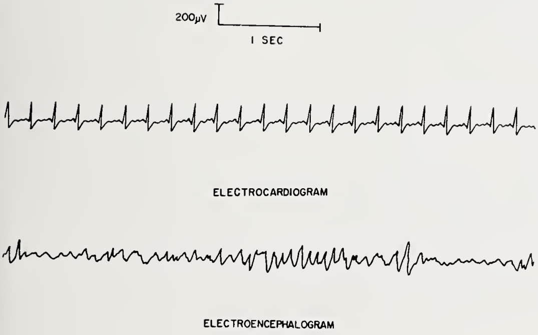

Figure 4. Representative EEG and ECG tracings recorded from a normal unrestrained squirrel monkey with permanently implanted recording electrodes. Recordings were enlarged with a pantograph and retraced with india ink for reproduction purposes. High and low pass pre-amplifier filters were set at 4 and 20 cps, respectively, for both tracings.

wall and is passed along the neck, behind the ear canal and up through the scalp opening surrounding the cemented receptacle. The obturator is removed and the free end of electrode wire 4 is inserted into the tip and passed down to the hub, as seen in Figure 3B. The wire and suction tip are now pulled down and out the chest incision. This procedure is repeated for electrode wire 5. The ends of both wires are bared and coiled into small loops which are sutured to the chest wall. The electrode wires should be left lax to prevent breaking due to normal activity and body movements. Nitrofurazone soluble powder is sprinkled into scalp and chest wounds and all incisions are closed.

### EEG and ECG Recording

Recordings of brain and heart activity can be made immediately after implantation or on any post-surgical experimental schedule. A mating plug (Amphenol "Tiny Tim," 223-1105) attached to a 5-lead cable is inserted into the receptacle and recordings can be made with any suitable EEG, ECG or direct writing recorder. A flexible screen door spring sheaths the cable and prevents the monkey from biting through the leads. The traces seen in Figure 4 were obtained from an Electronics for Medicine Recorder, Model DR-8, enlarged by pantograph and retraced with pen and ink for reproduction. During the recording session, the monkey was free to roam within a 45 x 43 x 36 cm plastic testing chamber. A number of monkeys prepared in the described manner are being used presently to study the effects of drugs and naturally-occurring metabolites on behavior and central nervous system function.

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### ACKNOWLEDGMENT

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## AIR POLLUTION

Air Pollution is a definite health hazard and must not be permitted to spread its more serious adverse effects on those suffering from heart and lung disorders. High concentrations of pollutants caused 4,000 deaths in London in 1952 and 22 deaths in Donora, Pennsylvania, in 1948. In addition, property damage to crops, to buildings, to metals and to fabrics has been estimated by the Federal Government to amount to eleven billion dollars a year. The five main sources of air pollution are:

1. The motor vehicle. Annually 90 million of these machines constantly emit contaminated gases into the air.
2. The next offender is industry. Smelters, refineries, steel and paper mills and the electric utilities which produce this form of energy from the combustion of hydrocarbon fuels.
3. Home and office heating by these fuels and incineration of wastes complete the felony.

The motor vehicle can be modified, however, to produce a minimum of noxious exhaust. Research is advancing the development of electric power for vehicles and it is to be hoped that the electric powered buses for urban use will come forth. Devices are available to industry for stack control of gases and particulates. The collection of fly-ash trapped by stack filters and electrostatic precipitators will pose a problem in ultimate disposal. Last, the rapid development of atomic energy for power may eventually solve many of the industrial pollution problems and has already made a significant start in the electric utilities field. According to a well-informed authority, it will cost only three billion dollars a year to cut air pollution by two-thirds. The need is imperative, the technology is here. All that is necessary is the will of the people to press industry for these advances and foot the bill for their use in the civic environment. *New York State Journal of Medicine*, Sept. 1967.

# THE SERVICE ROLE OF THE SOCIAL PSYCHOLOGIST IN A HOSPITAL SETTING

**• The natural processes by which groups develop the ability for cohesive action can be utilized with intact operating work teams within a hospital setting. The goal of the social psychologist leader is to keep each group culture alive and kicking but to avoid being trapped in the crossfire.**

James E. Durkin, Ph.D.

This report is the story of a beginning, a start at establishing and defining a service role uniquely suited to the skills, background and outlook of the social psychologist within a hospital. While the research-academic role of the social psychologist is clearly established, his applied-service role is just about as uncharted but he brings to the service role knowledge, ability, and interest in working with groups of individuals in interaction. Because of this focus it is clear that the service function of group psychotherapy with patients should be suitable for the social psychologists, provided that he has or is willing to accumulate the clinical experience. However, psychotherapy, whether group or individual, is basically a specialty within psychiatry or clinical psychology and fails to utilize the full range of usefulness that the social psychologist is uniquely able to contribute.

### Sensitivity Training

Sensitivity training, or T-Group training for short, is an applied group interaction technique which, although related to group psychotherapy, really developed within the discipline of social psychology. The T-Group experience differs from the group psychotherapy experience in several respects. First it was developed for normals rather than neurotics or other psychopathological groups. Furthermore, the focus of T-Groups in one *group* as a unitary entity with its latent emotionality and its phases of development rather than on *individual* problems of adjustment. Finally, the T-Group with its primary goal of reflecting on its own processes avoids value orientations which operate in the outside world, while psychotherapy is constantly focused on the sick-well value dimension and aims to return its members to society in a better adjusted state.

The key which unlocks this powerful naturally occurring T-Group development process might be called systematic indirection. While the group makes a "contract" to meet over an extended series of meetings, the assigned group leader, the "trainer," assiduously avoids imposing an agenda, a task, or assigned roles within the group. What verbal activity he does contribute is largely devoted to reflecting on the interaction processes currently operating within the group. This comes as a shock to group members who are used to having their group activities laid out for them, a shock which stimulates the emergence of an emotionally based "group culture" which, according to theory operates beneath the surface of all task groups but is usually completely masked by the work demands of the group. T-Groups go through a classical series of developmental stages marked by emergent issues centered around dependency, power,

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and intimacy themes. The T-Group experience ends with most of the members reaching insight at a deep experimental level concerning the relationship between group work and group emotionality, an insight which they can bring "back home" and apply fruitfully.

### Group Interaction

The classical T-Group brings strangers together away from "back home" relationships and responsibilities and lets the group process "happen" without applying any value orientation toward which the group should aim. When the group members are part of a work group who have been, are, and will be fulfilling a specific and demanding task function on the outside, these classical T-Group conditions cannot be met. Realistically, one must be cautious about emotionally opening up to someone who will be working over or under or beside you in the real world long after the end of the group. So too, a group with common real world concerns and values can hardly avoid bringing in these common problems and looking for solutions to real world problems as a group. A T-Group related technique which might be called Guided Group Interaction presents an alternative suitable with work groups seen intact within an institutional setting such as a hospital. In guided group interaction many of the methods used in the T-Group are employed in order to stimulate the emergence of a living group culture. The social psychologist must be equipped to handle the emotional regression of the members as they develop a solid basis for group cohesiveness. However, these groups do not develop without a value orientation, for they share common interests in outside world matters. For example, how could the group of nursing supervisors or head nurses fail to converge upon the common goal of quality nursing care in a free group discussion? The emotional solidity of the groups must be strong enough for them to carry out actions as a group which effect solutions to common problems on the outside. Unless the group has power as a group on the outside and is able to wield it, the group will soon realize that is a phony group.

A group cohesive enough to act for changes in their situation within the larger institution is bound to run up against other groups who will be obliged to change themselves in order to accommodate these changes. If the social psychologist is a leader-member of two conflicting groups, eg, a head nurse's and a nursing supervisor's group, he must militantly avoid getting in the crossfire. He will become a scapegoat for both groups *A* and *B* if he becomes a go-between rather than insisting that both groups speak to each other as groups rather than through him as a member.

Our experience to date has shown T-group training, led by a sound psychologist, to be an effective form of guided group interaction within a hospital.

### MATERIAL AVAILABLE

Leaflets for your patients are available from the Delaware Tuberculosis Society on the following subjects: Bronchiectasis, Chronic Cough, Coccy (Coccidioidomyciosis), Dust Diseases, Hay Fever, Histoplasmosis, Pleurisy, Shortness of Breath, Asthma, Chronic Bronchitis, Cigarette Smoking, Common Cold, Emphysema, Influenza, Pneumonia, and Tuberculosis.

*Facts about Nutrition*, a newly revised booklet prepared by the National Institute of Arthritis and Metabolic Diseases of the Public Health Service's National Institutes of Health, Bethesda, Md., clarifies basic facts about food and diet and emphasizes the importance of good nutrition for good health.

Single copies of this Public Health Service Publication No. 917 are available from the Public Health Service, Washington, D.C. 20201. It may also be purchased from the Government Printing Office, Washington, D.C. 20402, for 25 cents per copy.

*Medical Genetics, Biochemical Genetics in Man, Genes in Families and Populations* — These are three of the pamphlets available to physicians from the Medical Department, the National Foundation, March of Dimes, 800 Second Ave., N.Y.C., 10017.

# ISOSORBIDE, A New Oral Osmotic Diuretic Preclinical Safety Testing in Animals*

**• Isosorbide has been shown to be an effective oral osmotic diuretic. Its safety for inclusion in clinical investigation is based on acute, prolonged feeding, multigeneration and teratology studies in experimental animals.**

JOSEPH F. TREON, Ph.D.

For some years the safety of the partial esters known as SPAN** and TWEEN** products has been recognized because of prolonged experimental studies in animals and from the experience of their extended usage in foods, drugs and cosmetics.

To fully understand the serendipity relating to the discovery that isosorbide is an oral osmotic diuretic,[1,2] it is necessary to have some understanding of the chemical composition of these esters. During the esterification of sorbitol with a fatty acid at high temperature, some anhydrization accompanies esterification. For example, when sorbitol loses one mole of water, it forms monoanhydrosorbitol, or 1, 4-D-sorbitan, which in turn loses another mole of water resulting in 1, 4-3, 6-dianhydrosorbitol, or isosorbide, as shown in Figure 1.

### Physiologic Properties and Metabolic Patterns

In a desire to learn more about the relationship between each moiety, or particular portion, of these esters with respect to acute toxicity and metabolism, a program was designed which, in part, included such a study for the hexitols and their anhydrides. Thus, during the portion related to sorbitol, sorbitan and isosorbide, it was observed that isosorbide produced diuresis in rats following both oral and intravenous routes of administration. This activity was later shown in dogs [3–6] and man by others.

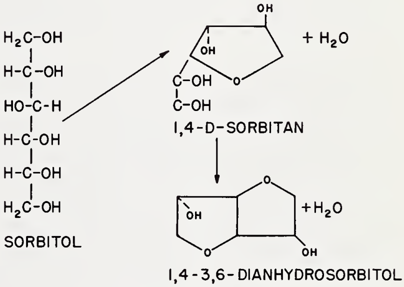

Figure 1
The anhydrization of sorbitol.

Although the osmotic diuretic properties of the hexitols, sorbitol and mannitol, have been known for some time, these are only clinically useful when given intravenously. When given intravenously a high concentration of the hexitols is put into the blood stream instantly and a high concentration reaches the kidneys

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*Presented at the seventh regional meeting of the American College of Physicians for Delaware, Wilmington, February 24, 1968.

**Registered trademark of Atlas Chemical Industries, Inc., Wilmington, Delaware.

Table 1

**FATE OF ISOSORBIDE-$C^{14}$ RATS**

Absence of effect of the absorptive state on the fate of isosorbide given orally to rats.

| ROUTE | ORAL | | |
|---|---|---|---|
| gm/kg | 0.5 | 2.0 | 2.0 |
| Abs. State | F | F | NF |
| | % of ACTIVITY RECOVERED | | |
| Urine | 97.2 | 95.4 | 97.5 |
| Feces | 2.3 | 2.8 | 2.7 |
| Respired Air | 0.15 | 0.02 | 0.5 |
| Liver | Nil | Nil | Nil |
| Carcass | 0.55 | Nil | 0.5 |

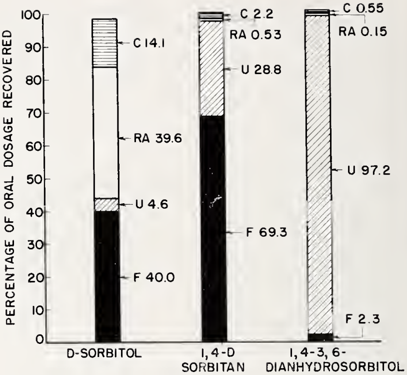

Figure 2

Relationship between structure and fate of sorbitol and its anhydrides.

C = Carcass, RA = Respired Air, U = Urine, F = Feces.

on the first pass without any chance for oxidation by the liver. An explanation (Figure 2) of the diuretic efficacy of isosorbide, but not sorbitol, when given orally is provided by the difference in the patterns of their metabolism. Tracer studies using randomly labeled carbon-14 compounds were employed to study the metabolic fate of sorbitol, sorbitan and isosorbide. When each compound was given orally to a group of four rats under the same conditions, ie, 0.50 gm/kg orally to fasted rats, the fate of each compound is rather different as shown in Figure 2. Under these conditions in that experiment 40% of the radioactivity from sorbitol remained in the feces, 40% was oxidized to $C^{14}O_2$ and only 5% was recovered in the urine. When one molecule of water is chemically removed from the sorbitol, the radioactivity from the resultant sorbitan was then distributed 69% in the feces, 29% in the urine and about 0.5% as $C^{14}O_2$ in the respired air. It was, of course, somewhat surprising to find that the resultant radioactivity from the ingested isosorbide was found in the urine to the extent of 97%.

Table 2

**FATE OF ISOSORBIDE-$C^{14}$ RATS**

Absence of effect of the absorptive state on the fate of isosorbide given intravenously to rats.

| ROUTE | I.V. | |
|---|---|---|
| gm/kg | 2.0 | 2.0 |
| Abs. State | F | NF |
| | % of ACTIVITY RECOVERED | |
| Urine | 95.2 | 97.3 |
| Feces | 0.07 | 0.5 |
| Respired Air | Nil | Nil |
| Liver | Nil | Nil |
| Carcass | Nil | Nil |
| Contaminated Skin | 0.7 | 0.2 |

Furthermore, the radioactivity which appeared in the urine of rats following the ingestion of isosorbide was essentially that from unaltered isosorbide. Of the radioactivity which appeared in the urine, 96% migrated on paper at the same rate as isosorbide-$C^{14}$ and the rest was indicated to be an ester of isosorbide. Thus, nearly every molecule of isosorbide ingested is effective as a diuretic.

However, the hexitols, such as sorbitol or mannitol, when given orally, do not provide the necessary blood level due to slow absorption and exposure to liver oxidation.[7]

Another difference between the hexitols and isosorbide is that the distribution between feces, urine, respired air and carcass for sorbitol[7] will vary depending on the route of administration, absorptive state, dosage, physical activity and other parameters, whereas these parameters are without any significant effect on isosorbide. Dosage, absorptive state (fasted vs nonfasted) and route of administration (oral vs I.V.) have no effect on the extent of urinary isosorbide (Tables 1 & 2).

Furthermore, in contrast to hexitols, effective osmotic diuretic dosages of isosorbide do not produce diarrhea. The approximate threshold laxative dose for isosorbide given orally to fasted rats is 17.8 gm/kg. This is 10 to 20 times greater than the threshold laxative doses for hexitols and hexitans; there is a relationship between the unabsorbed amount in the feces and laxation of these products.

**Diuresis, Dosage-Relationship**

The relationship between the urinary volume and the oral dosage of isosorbide (50% w/v) given to male and female rats[2] was that of a straight line (Figure 3). Although the ratio of the urine output for 24 hours prior to dosage to urinary volume 24 hours following dosage was always greater than one, the peak diuretic response in rats occurred during the period 0 to 4 hours immediately after ingestion of isosorbide. During this period diuresis in rats was observed at the lowest dosage of 1.58 gm/kg and was increased 8 to 9 fold at the highest dosage 10.0 gm/kg. In man, as shown later by Dr. Orvis, the effective period of diuresis is somewhat longer.

**Acute, Prolonged Feeding and Teratology Studies**

Isosorbide has a very low order of acute toxicity when given orally (Table 3) to rats, mice[2] or rabbits; the acute oral $LD_{50}$ for dogs is greater than 31 gm/kg.[3,4] It also has a very low acute toxicity when given intravenously (Table 4) to rats or mice.[2]

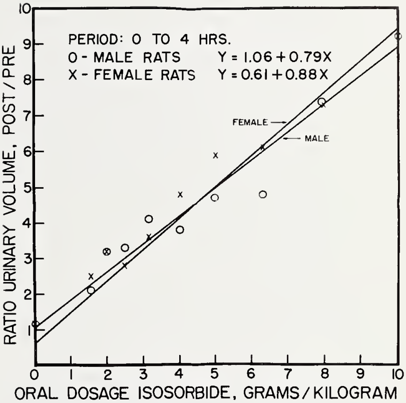

Figure 3

Relationship between dosage and diuresis among male and female rats, respectively, given isosorbide orally.

Isosorbide (88.3% w/w in $H_2O$ was nonirritating to both the unwashed and washed (2 sec.) rabbit eye and to the rabbit skin under a closed patch.

A 13-week subacute toxicity study was carried out in 4 groups of 48 rats (24 males and 24 females). Three groups were fed diets containing 1, 5 and 10% isosorbide in the

Table 3

ACUTE ORAL TOXICITY — ISOSORBIDE

Acute oral $LD_{50}$ at 14 days calculated by the method of Litchfield and Wilcoxon.[8]

| Animal | Sex | $LD_{50}$ | gm/kg 0.95 Limits | Slope |
|---|---|---|---|---|
| Mouse | M | 27.2 | 22.4 - 33.1 | 1.42 |
| Mouse | F | 26.8 | 22.5 - 31.9 | 1.32 |
| Rat | M | 27.8 | 23.8 - 32.5 | 1.25 |
| Rat | F | 23.9 | 22.3 - 25.6 | 1.10 |
| Rabbit | F | 18.9 | 16.9 - 21.2 | 1.20 |

Table 4

ACUTE INTRAVENOUS TOXICITY — ISOSORBIDE

Acute I.V. $LD_{50}$ at 7 days calculated by the method of Litchfield and Wilcoxon.

| Animal | Sex | $LD_{50}$ | gm/kg 0.95 Limits | Slope |
|---|---|---|---|---|
| Mouse | M | 14.2 | 12.2 - 16.5 | 1.24 |
| Mouse | F | 16.1 | 14.0 - 18.5 | 1.22 |
| Rat | M | 16.6 | 15.6 - 17.7 | 1.11 |
| Rat | F | 16.1 | 15.1 - 17.1 | 1.09 |

basal Purina Laboratory Chow. The fourth group served as a control and received only the basal diet. This study showed isosorbide to be nontoxic on the basis of appearance, uniform survival, normal growth, the ratio of 6 different tissue weights to that of the body weight, urine output and urine analysis, and food and water consumption. Water consumption at the 10% level was related to diuresis. Gross and histologic examination of 21 different tissues, including the kidneys, revealed no pathological alterations when compared to the controls.[2]

An 18-month study at the same level showed isosorbide to be equally without adverse effects.

In a chronic (52 week) study, the daily (5 times/week) dosage of 12 gm/kg was given orally to dogs without any evidence of toxicity.[3,4]

A multigeneration study in rats had no effect upon the following indices:

Fertility Index: (No Pregnancies/No Matings) x 100

Gestation Index: (No Litters Born/No Pregnancies) x 100

Viability Index: (No Pups Surviving at 4 Days/No Pups Born) x 100

Lactation Index: (No Pups Weaned/No Pups at 4 Days) x 100

Weight of Pups at 4 to 21 Days (weaning)

There were no visceral or skeletal anomalies in pups obtained from rats on a teratology study.

Thus, isosorbide is an effective oral osmotic diuretic and was considered safe for clinical investigation.

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### ACKNOWLEDGMENT

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### Not **Why** but **How**

"The nature of our mind leads us to seek the essence or the why of things but experience soon teaches us that we cannot get beyond the how. We know how water can be made; but why does the combination of one volume of oxygen with two volumes of hydrogen produce water? We have no idea. In medicine it is equally absurd to concern one's self with the question *why* . . . only the question *how* is within our range. This is true of all experimental sciences in which we reach only relative or partial truths, but this knowledge is enough to broaden our power over nature."

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### DRUG ADDICTION

In the United States today from 60,000 to 120,000 persons are addicted to opiates or habituated to them. Approximately 90 per cent take heroin. Other thousands of people use opiates illicitly at times.

Donald B. Louria, M.D.;*Annals of Internal Medicine,* July, 1967.

# THE FIRST PSYCHIATRIC EMERGENCY, Community Consultation and Education Service in Delaware

• Emergency Service works with community resources for early case findings which may arrest the progress of serious mental illness and provide consultation to the community agency workers. Initial contact in the community of an Emergency Service (Crisis Intervention Team) indicates a great demand for such a prompt psychiatric treatment agency.

Aydin Z. Bill, M.D.
Charles E. Sample, ACSW

### Organization

The Psychiatric Emergency Service (Team) has been organized as a part of the Southern New Castle County Community Mental Health Center of the Department of Mental Health of Delaware. The network of services, coordinated within the Community Mental Health Center's program include in-patient care, out-patient care, partial hospitalization, emergency services, consultation and education. These five essential services are required for federal assistance under the Community Mental Health Centers Act.

The Emergency Service of the Southern New Castle County Community Mental Health Center will also carry the responsibility of developing consultation and education programs for community agencies in the community. The northern part of the southern New Castle County area begins at Pigeon Point, proceeds in a northwesterly direction, extends across the southern boundary of the city of Wilmington, includes Elsmere, and continues to the border of Pennsylvania, west of the Pleasant Hill area. The southern boundary extends from east to west following the Kent County line just north of Smyrna. The population of the Southern New Castle County area is approximately 160,000, which includes largely populated areas such as: Newark, Elsmere and New Castle.

The Psychiatric Emergency Service office is located on the grounds of the Delaware State Hospital. The emergency team, at the present time, consists of a psychiatrist, a social worker, a nurse and five mental health aides. The three professional workers are mobilized and ready for service five days a week from 8:30 A.M. until 5:00 P.M. The mental health aides who are trained to respond to the phone calls from people who are in distress, are available 24 hours a day, 7 days a week.

When a distress call is received, it is the responsibility of the mental health aide to evaluate the nature of the call and offer the appropriate assistance via the phone. If immediate psychiatric attention is essential, the team can respond to the crisis situation. When the team is not available (e g, evening hours) the mental health aide seeks assistance from the physician on duty in order to take appropriate action. Then the physician on duty handles the case. If the crisis does not require immediate attention, the mental health aide reports to the team the next morning and the team members contact the caller to evaluate the situation. If indicated, the team is prepared to visit the patient in the home.

### Definition of Psychiatric Emergency

In 1963, the Joint Information Service of the American Psychiatric Association and the National Association for Mental Health carried out a study of the patterns of the psychiatric emergency services. The results

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were published in 1966. The questionnaire which was sent to 154 facilities providing emergency services asked, "Do you operate under a formal definition of what constitutes a psychiatric emergency? If so, please state the definition." Only 20 replies said that they had formal definitions, and none of these as set forth would meet the dictionary definition.[1] Generally it is agreed in the psychiatric literature that there is no agreement on what constitutes a psychiatric emergency.[2] In an article reporting his experiences in handling psychiatric emergencies, Miller makes the following definition: "A psychiatric emergency is any individual who develops a sudden or rapid disorganization in his capacity to control his behavior or to carry out his usual personal, vocational and social activities."[3]

The modern concept of psychiatric emergency differs from the former definition which stated that only a person who was a danger to himself or to others would constitute an emergency.[4] Today it is generally accepted that psychiatric emergencies are not limited to those who might be dangerous to themselves or to others. It is also known that the disturbed behavior of a person who is given immediate treatment and attention often responds dramatically. There are persons, as Shneidman says, "Whose lethality is low, but whose desperation is high."[5] Taking into consideration the modern concepts, we will define a psychiatric emergency in the language used by Ungerleider: "All patients whose condition warrants prompt psychiatric attention for whatever reason are designated emergencies."[6]

Thus, classification of a psychiatric emergency seems largely contingent on what one considers a social emergency. Of course many social emergencies are not psychiatric emergencies, but virtually all psychiatric emergencies are simultaneously social emergencies. Suicide, assault and property damage are almost invariably seen as social emergencies while other kinds of disturbed behavior, if they are to be considered psychiatric emergencies, must also be perceived as social emergencies that carry a threat, whether immediate or remote.

## Goal of Emergency and Consultation Service

The Service offers immediate psychiatric care to those persons who are in need. Since there is and will be no waiting list, persons suffering from a mental illness may start to receive their treatment as soon as they ask for it. Because the team is mobile, this treatment can be given in the home of the patient who otherwise may have difficulty getting to the clinic. The essential goals of the emergency Service can be summarized as follows:

1. Promptness: The mobile team is ready to respond to a call within a few minutes if the case comes to the clinic as a "walk-in," or to go to the home of the patient within a few hours. No referral forms or other red tape are necessary to alert the team.

2. Prevention of hospitalization wherever and whenever possible: By instituting treatment in the home, ties to the family, community and occupation are not disturbed.

3. Early case findings: By establishing close contact with community agencies such as clergy, public health department, community nursing agencies, local physicians, the police, family care services and others, the beginning of an emotional illness can be detected in its early phases and by immediate intervention the progress of the illness can be arrested.

4. Family involvement: The way of life of a patient and his family interactions are difficult to evaluate in the usual office contact. Home visits enable the staff to gain more first hand information about the patient and the family can participate in the treatment program. Minutes in the home of a patient, can gain for an observer more pertinent and accurate information about the patient and his family than hours in an office.

The findings of the Home Treatment Service of Boston State Hospital showed that a program of evaluation and treatment in the home can be effective as an alternative to hospitalization for a large number of patients suffering from a serious mental illness. At least half of those who would be otherwise hospitalized can be adequately treated by a home-service team utilizing supportive psychotherapy together with psycho-pharmaceuticals[7].

### Community Consultation and Education

When Congress passed the Community Mental Health Centers Act in 1963, the Nation agreed that the care of the mentally ill was a community responsibility[8]. This brought a major change in the approach to mental health problems of the country. In general, state hospitals had been placed in isolated areas and the staff of these hospitals were overburdened with excessive case loads. There was no way of reaching the patient in his community and his natural environment.

The national program adopted in 1963, brought a new era to mental health planning. It shifted the focus of practice from hospital care to community care for mentally and emotionally ill people. It also called for prevention and control of mental illness for the general population through coordinated programs. If the environment plays an important role in determining whether a person will become mentally ill, then the concept of community or social psychiatry is a logical one.

Consultation and education are important parts of community psychiatry. They can extend the healing hand of medicine, psychiatry and the social sciences deep into the community, strengthen the mental health insights of community service professionals and provide a link between community agencies and mental health professionals. From a public health point of view, the problem of mental illness can not be alleviated sufficiently by individual or group treatment alone. Through the provisions of consultation services to nonpsychiatric physicians, teachers, clergy, police and others, preventive measures can be taken.

There is a strong likelihood that individuals in contact with public service agencies (the department of welfare, public health service agencies, family services, vocational and marital counseling agencies and legal aid societies) may be under considerable stress. Consequently, these organizations are in a unique position to provide counseling services which may prevent more acute psychological crises by helping these individuals to identify their problems and cope with them. Therefore, the availability of mental health consultation to different groups may prove very useful, since the social agencies mentioned above may make extensive use of the services of mental health specialists.

A mental health consultant should know the community in which he lives and works; he should be aware of its mental health needs. He should know the available public and private services in his community and should be able to identify the professionals who might become useful partners in consultation on behalf of those in need.

The Emergency and Consultation Team of Southern New Castle County Community Mental Health Center, in order to carry out these outlined goals, arranged meetings with private and public organizations and within one month met with fourteen of them to explain its services. With the cooperation of the Mental Health Association of Delaware, a series of seminars will be held every three weeks as training and education for the workers of the aforementioned agencies.

### Evaluation of Two Months Activities

The Emergency Service received 84 referrals within the first two months of its opertion. This relatively high number of referrals for a service which is virtually unknown to the community reflects the need for such a speedy, mobile and no-waiting-list service. As will be seen on Table I, over 50% of the referrals came from the patient, family or from a neighbor after reading about the new service in a newspaper release. Social agencies which may be facing more crisis problems, referred only slightly over 3.5% of the cases. Since this could be due to their not knowing about the service available to them, the Emergency Service gave top priority to informing these agencies about the scope and function of the service.

A form letter regarding the service was sent to all licensed physicians in Delaware from the Department of Mental Health. The team made appointments with most community agencies and held meetings with their representatives to explain our purpose and function. When the team met with the State Police representatives, the results were most satisfying. The cooperation of the police was astonishing when we consider the fact that they appear to be having the most complaints

Table I. Referral Sources

| | |
|---|---|
| Social Agencies | 3 |
| Admission office in-patient service | 9 |
| Out-patient service | 7 |
| Self | 15 |
| Family | 28 |
| Neighbor | 3 |
| Local M.D. | 7 |
| Other | 12 |
| Total | 84 |

about mental health problems. They agreed to hold additional meetings in the future to discuss the cases they have referred to us. We feel that this is an important step towards starting a training program. Probably as a result of these activities, the 67% first month referral rate from self, family and neighbors dropped to 50% in the second month and referrals from other agencies gained momentum.

From a total of 84 referrals, 57 were interviewed and evaluated for treatment possibilities (Table II). Of these 26% were found to be too sick to be treated in the home so that treatment at the In-Patient Service was recommended. Of those referred, 16% were advised to seek help from Out-Patient Division of the Center because they were not experiencing an immediate crisis. Only 37% of the cases which were evaluated were found to be suitable for home treatment as an alternative to hospitalization and were accepted for treatment.

The rest of the cases after a phone conversation were not found suitable for the Emergency Service, since they were not experiencing a crisis. These were referred to the appropriate agencies (Table III).

In general, half of the patients (Table III) were too sick to be treated in the home or the request was for information purposes. Only a fraction of the referrals did not keep their appointments, and in one case the address given for the home visit was not correct.

Table II. Disposition after Evaluation

| | |
|---|---|
| Treatment in home | 21 |
| To In-patient Division | 15 |
| To Out-patient Division | 9 |
| To Family Dr. | 3 |
| Other Agencies | 4 |
| Consultation only | 5 |
| Total | 57 |

Table III. Disposition after Telephone Referral. (No personal interview)

| | |
|---|---|
| Recommended In-Patient treatment | 7 |
| Recommended Out-Patient Service | 4 |
| Asking for information only | 8 |
| Appointment not kept | 4 |
| Other | 4 |
| Total | 27 |

## Summary

The Psychiatric Emergency Service, a substantial part of the Southern New Castle County Community Mental Health Center, is responsible for short term treatment during crisis, and to provide community consultation and education. The Emergency Service (Team) is mobile, thus able to initiate treatment in the patient's home. The goals of this service (promptness of treatment, prevention of hospitalization whenever possible, early case finding, family involvement and community participation) are designed to provide immediate treatment for those persons as soon as they ask for it. The team (psychiatrist, social worker, nurse) is available for community mental health consultation services to nonpsychiatric physicians, social and health agencies. A series of seminars concerned with the training and education of agency workers has been organized as a portion of the overall education responsibility of the Service.

In conclusion, The Psychiatric Emergency, Education and Consultation Service has the challenge to provide an immediate psychiatric service to the community toward the goal of prevention of serious mental illnesses and emotional crises.

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# RECENT ADVANCES IN HISTOPATHOLOGICAL PROCESSING OF TEMPORAL BONE

**• Recently developed techniques, such as decalcification by tetrasodium edetate (EDTA), vacuum embedding, and embedding prior to decalcification, may give better results in histopathological processing of temporal bone.**

JUNG-CHING LIU, M.D.

Until recently the study of the human temporal bone was conducted in an extremely limited number of laboratories. Under the support of the Temporal Bone Banks Program for Ear Research, there are now an increased number of temporal bone laboratories throughout the United States, and many studies of the ear are being carried out. We at Jefferson Medical College have been fortunate to receive financial support for the past five years from the Deafness Research Foundation to establish a temporal bone bank. This had enabled us to study human as well as experimental animal temporal bones.

Histopathological processing of the temporal bone requires special techniques, and the work is tedious and difficult compared to soft tissue specimens.[1-3]

Modern audiologic procedures permit quantitative assessment of human hearing sensitivity and attempt to determine the site of pathology based on interpretation of such special tests as recruitment, tone decay, and Bekesy audiometry. Although these data provide valuable information about auditory function, in many instances audiologic findings can only presume causative pathology. Postmortem study of temporal bones of these well-tested patients is necessary in order to determine the relationship between physiological data and underlying pathology.

The purpose of this paper is to outline the histopathological processing of the temporal bone with special emphasis on recently developed techniques, such as decalcification by tetrasodium edetate (EDTA), application of a vacuum in embedding, and embedding prior to decalcification.

After a temporal bone is removed, it is fixed, decalcified, embedded, hardened, sectioned, and stained. For a human temporal bone this processing takes six to eight months, and for animal bones, about half of this time.

### Fixation

Immediately after the bone is removed, a 20% formalin solution is instilled in the tympanic cavity through the tympanic membrane and the bone is immersed in 20% formalin and stored in a refrigerator. To promote fixation of the inner ear, the upper part of the bony superior semicircular canal may be opened. During the next 2 weeks for human bone and one week for cat, guinea pig and squirrel monkey, fixation continues in 10% formalin.

### Decalcification

This is one of the most difficult parts of the processing. This procedure is very time-

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This work was done in collaboration with the Neuropsychological Laboratory, Veterans Administration Hospital, Wilmington, Delaware, and was supported in part by the Deafness Research Foundation and NIH Grant NB-5082.

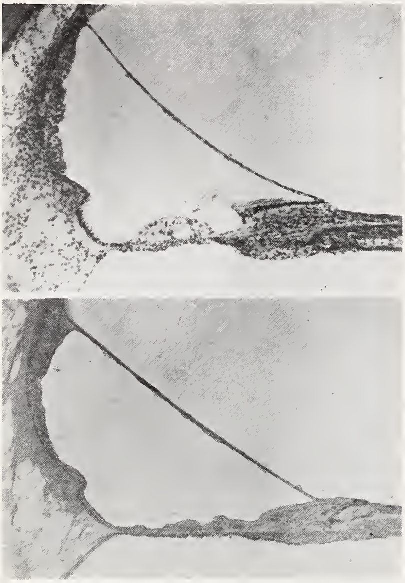

Figure 1. Cochlear ducts of the right (above) and left (below) cochleas of a 51-year-old man with subjectively normal hearing. EDTA was used 4 months for the right ear and Cal-Ex was used 2 weeks for the left ear. The organ of Corti of the right cochlea is fairly well preserved, but that of the left is badly distorted.

consuming and often the decalcifying solutions change the sensori-neural elements of the inner ear and the stainability of various structures. One percent nitric acid and 5% trichloroacetic acid have been widely used for a long time.[1,2] Using these solutions, a chemical test is available to determine the end of decalcification, but preservation of the inner ear structures appears unpredictable in many instances.[3] Recently, neutral tetrasodium edetate (EDTA) solution had been shown to be particularly effective in the preservation of inner ear structures and their stainability.[5,6,7] Oshiro[8] successfully stained deoxyribonucleic acid (DNA) in the organ of Corti after temporal bones had been decalcified by this solution. A disadvantage of this method is that the termination of decalcification had to be determined by x-ray, but its advantages overcome this minor disadvantage. It requires 12 to 16 weeks for human and 8 to 9 weeks for guinea pig bones for decalcification by 5% to 10% neutral EDTA solution. There are some commercial solutions, such as Cal-Ex, which require less than 2 weeks to decalcify a human temporal bone. Figure 1 shows the organ of Corti of the right (above) and left (below) cochleas of a 51-year-old man with subjectively normal hearing. EDTA was used 4 months for the right ear and Cal-Ex was used 2 weeks for the left ear. The organ of Corti of the right cochlea is fairly well preserved, but that of the left is badly distorted.

### Dehydration

The specimen is passed through graded alcohol solutions and ether-alcohol.[1,2]

### Embedding

Ordinarily the specimen is passed through 3%, 6% and 12% celloidin for 3 to 4 weeks in each solution. The temporal bone contains numerous air cells which cause difficulties in embedding. To minimize air bubbles, Guild[1] advocated degassed water. Recently a vacuum had been applied during the process of embedding to remove air bubbles from the temporal bone and to promote infiltration of the celloidin into the inner ear.[9] Donahue and Gussen[9] suggested a period of 48 hours each for vacuum embedding in 3%, 6% and 12% celloidin and an additional week in 12% celloidin without a vacuum. However, in my experience, the time recommended by them appears too short to achieve effective embedding. After embedding, the specimen is hardened gradually, mounted in the block holder, and sectioned.

Another innovation in embedding is to embed prior to decalcification. Sections made from cochleas which were embedded in celloidin prior to decalcification with EDTA have shown the most satisfactory preservation of the otolithic membrane[7] and nucleic acid.[8] The cause of the better results was not explained. I suggest that early embedding by celloidin may fix the inner ear structures, and that the layer of celloidin around the speci-

# In Memoriam

Herman J. Bennett, M.D.

Dr. Herman J. Bennett, of Green Acres, died on March 4, 1968, after an apparent heart attack at his home.

Dr. Bennett was born in New York City in 1911. He received his M.D. from the University of Vienna in 1936. During World War II he served in the U. S. Army and received the Bronze Star with Clusters for his service in the European Theatre. Following service he joined the New York City Health Department for two years and received his Master of Science Degree in Public Health from Columbia University in 1947.

Dr. Bennett then came to Wilmington to serve with the General Motors Corporation. In 1957 he was certified by the Board of Preventive Medicine. He was past president of the Delaware Industrial Medical Association and a Board Member of the Mental Health Association of Delaware and the Delaware Epilepsy Association. Dr. Bennett remained active with General Motors until his unexpected death.

He is survived by his widow, Mrs. Sally G. Bennett and three sons; Lewis P., Matthew Alan, and Steven James, all of this city.

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## RECENT ADVANCES IN HISTOPATHOLOGICAL PROCESSING OF TEMPORAL BONE

men reduces unwanted chemical effects of the decalcification solution on the deeply-lying tissue, thus resulting in better preservation.

### Staining

Hematoxylin and eosin stain is used routinely, but various other staining methods may be applied.[2] Some staining methods require modification for celloidin sections. For example, the luxol fast blue and cresyl echt violet stains,[10] widely used in neurological staining, may be used on the celloidin sections of the temporal bone successfully if dehydration was done with equal parts of chloroform and 100% alcohol instead of 100% alcohol.

### Summary

Although recently developed techniques have been cited in this paper, histopathological processing of the temporal bone requires further improvement.

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### ACKNOWLEDGMENTS

The author wishes to thank Dr. Fred Harbert of Jefferson Medical College for his suggestions, and Dr. Chester Wilpizeski of VA Hospital, Wilmington, and Jefferson Medical College for his cooperation.

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## THE FIRST ALLERGIST?

What is food to one man may be fierce poison to others.

*Lucretius, over 2000 years ago.*

# Highlights

## CARDIOGENIC SHOCK

Domingo Aviado, M.D. and Arthur Baue, M.D., — *University of Penna., Delaware Academy of General Practice Fall Course, October, 1967*

A knowledge of the physiology of the circulation and drugs affecting it is requisite to proper choice of drugs in cardiogenic shock.

Since "the circulation conducts its affairs at the capillary bed," the therapeutic goal is not higher arterial pressure but increased capillary flow.

Shock in myocardial infarction is associated with decreased cardiac output and increased vascular resistance. Improvement of the latter by vasodilation (adrenergic blockaders or $\beta$-stimulators) will secondarily improve cardiac output.

Agents such as reserpine and guanethidine which deplete catecholamines render other agents which work by release of catecholamines ineffective (Ex.: isoproterenol (Isuprel); mephenteramine (Wyamine).

Norepinephrine (Levophed) is an $\alpha$ and $\beta$ stimulator and therefore increases peripheral resistance as well as stimulating myocardial contraction. In small doses the latter action may predominate but large doses are harmful and never to be used. Preferred by most physicians is isoproterenol (Isuprel) which is a $\beta$-stimulator carrying peripheral dilatation while also stimulating the myocardium but to a lesser degree than Levophed.

Total ganglionic blockaders (Dibenzyline, Arfonsad) have no place in the treatment of cardiogenic shock.

Ancillary measures in the treatment of cardiogenic shock include digitalization, and conversion of metabolic acidosis as indicated by low pH with bicarbonate. Therapy with steroids is not helpful in pure cardiogenic shock but may help if septic shock is associated. Potassium supplementation may decrease arrhythmias secondary to Isuprel administration in patients who have been previously digitalized and chronically treated with diuretics.

Other supports to the circulation are experimental measures and include: counterpulsation (arteriotomy with withdrawal of blood in systole and reinfusion in diastole); extra-corporeal circulation by means of pump-oxygenators; and the Amstead pump, a mechanical heart massager for temporary ventricular assistance.

The patient with cardiogenic shock represents a delicate clinical problem necessitating minute by minute therapeutic control by the physician in charge.

In a recent article on shock, Dr. Lillehei and his co-workers made the following important statements. "There are times when scientific progress depends upon the removal of outmoded concepts from our thinking. Nowhere is this problem more evident than in the current treatment of shock. Despite far reaching medical knowledge concerning the physiology of circulation, the practicing physician, faced with a patient in shock too often tends to use ritual rather than reason in determining his course of treatment."

## PERIPHERAL VASCULAR DISEASE

Meyer Naide, M.D., — *University of Penna., Delaware Academy of General Practice Fall Course, October, 1967*

Preventive measures remain the most important in the expectant management of peripheral vascular disease. A printed sheet outlining the important principles for patients is very useful. These include the following rules:

1. Don't use any kind of tobacco (one cigarette decreases the temperature by 2°).
2. Keep warm.
3. Avoid crowds to prevent foot injury.
4. Wear wide toed shoes and loose hosiery.
5. Don't wear circular garters or sit with legs crossed.
6. Keep bed clothes off feet if they are uncomfortable.
7. Don't use heat or any medication on the feet without doctor's orders.
8. Wash feet daily with soap; dry by mopping, not rubbing.
9. Use lanolin on dry scaly feet; powder if the feet are moist.
10. Soak feet before pedicure in warm water. Don't cut close; don't cut into corners. Tell your chiropodist you have reduced blood flow.
11. Consult your doctor promptly for foot-aid advice for redness, blisters, pain or swelling.
12. Get medical treatment for athlete's foot.
13. Use lambs wool between the toes.
14. Avoid swimming in cold water or the ocean.
15. Avoid sunburn.
16. Walk slowly (90 steps/minute).
17. A low fat, low cholesterol diet is desirable.
18. Whiskey in moderation is a good vasodilator.

## SURGICAL TREATMENT OF RHEUMATOID DEFORMITIES IN THE LOWER LIMB

James E. Bateman, M.D., *Orthopedic and Arthritis Hospital, Ontario, Canada Medical Conference, WMC, December, 1967*

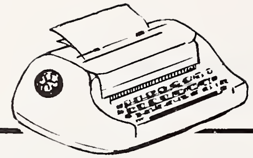
A team approach by the internist, the arthrologist, and the orthopedic surgeon is resulting in increased numbers of patients crippled by rheumatic deformities of the hip, knee, and foot who may be rehabilitated back to an ambulatory status.

Newer prosthetic devices such as Vitallium implants to provide new and smooth articular surfaces, as well as other technical improvements such as pneumatic bone burrs, and traction devices to permit maximal exposure of the joint space during surgery are among those factors contributing to the increased numbers of successful procedures. The frequently atrophic skin of the feet is avoided on the dorsal surface by the use of plantar incisions which heal in a much more satisfactory fashion; the use of synthetic suture material also improves healing by primary intention even in the severely rheumatoid.

Even the so-called "rheumatoid derelict" can frequently be rehabilitated. Correction of severe varus-valgus deformities of the knee is not as important to final success as restoration of a stable weight bearing surface. The debridement of the diseased patella to a smaller, smooth organ also improves the surgical results in the reconstruction of the tibial-femoral-patellar joint.

Post-operative use of a sling (to support) and spring (to exercise) device provides earliest possible use of the newly reconstructed joint even while the patient is still bed-bound.

In this particular class of patients, the interplay between physicians of various specialties is producing great dividends in the form of increased numbers of patients who can be helped to walk comfortably again.



# Special Reports

## CONFERENCE ON THE USE OF DATA MECHANIZATION AND COMPUTERS IN CLINICAL MEDICINE

### New York Academy of Sciences—January, 1968

George Fisher, M.D.

For five years there have been symposia on computers in medicine; and for five years we have heard of contemplated projects, promised future benefits, and research plans. Now we are beginning to hear a few speakers describe their solid achievements, and it is a refreshing contrast.

The University of Florida has developed a fine system for automatically ordering laboratory results and producing printed reports for the patient's chart (while simultaneously producing a bill for the service). Since the Wilmington Medical Center happens to have an identical machine, the program might possibly be made available in Delaware. The Permanente Medical Group, the U. S. Veterans Administration, and the Health Service of Sweden have all gone a long way in the processing of information from questionnaires which the patients fill out. Presumably, these questionnaires would be made available to any interested parties who wished to use the same approach. Both the Lockheed Company and Roswell Park Hospital have developed the idea of substituting a check list for the hospital nurses' notes, and entering the information into a computerized information system. Several institutions have maintained surveillance of drug use in the hospital as a by-product of the process of billing for the drugs.

On the other hand, it is becoming apparent that the dream of making diagnoses by computer is pretty far-fetched. The vast majority of diagnoses (strep throat, inguinal hernia, varicose veins, pneumonia) are so obvious to the physician that he would never consent to filling out pages of questionnaires to help in the diagnostic process. It is not a bad approach for teaching medical students, but it squanders the most expensive ingredient in the diagnostic process: the physician's time. And without the physical examination, it is hard to see how the computer has much to work with.

A vast number of more practical applications do lie just over the horizon, being held up by the high cost of terminals. A terminal is a teletype, telephone-dial, television set or other device which is located on the ward or in the doctor's office. Connected to the computer by telephone, it makes the whole system available anywhere. However, a rental cost of at least $100 a month for each terminal is more than most institutions wish to contemplate. While a few institutions with research grants do have these terminals, it has repeatedly proven dangerous to start anything which cannot justify its cost. When the grant runs out, where are you?

On the theoretical level, the conference produced some interesting points of view. There seems, for example, to be a general acceptance of the thought that the Standard Deviation merely confuses issues. If one wishes to say that a result is in the 95th percentile (otherwise known as 2½ standard deviations) it is now acceptable just to say so. In another area, pattern-recognition with the computer is reaching a high art, and several techniques are available for recognizing that a population is changing from one pattern to another. If you wish to examine the trends in data, you must of course have data; but we already have useful data in the computer. For billing purposes, the ZIP code of every patient is known, and therefore geographical trends can be examined. The patients' ages are known, and the length of stay. What is the trend since advent of Medicare? On whose service? For this sort of work, the programs and the machines are all ready, the data is simple. The only new requirement is sufficient shrewdness in the asking of questions.

There still seem to be physicians who needlessly fear that the computer is going to replace them, or at least greatly inconvenience them. In some future century that may be true, but at the moment the computer's challenge is paperwork. The Swedish Health Service reported that their medical record room file is increasing at an appalling rate. One and one-half miles of cabinets, per million population, per year. The computer is going to be pretty busy for a long time slaying that dragon.

## NATIONAL CONFERENCE ON HEALTH CARE FOR THE POOR

**Chicago, Illinois, December, 1967**

Harry Taylor, M.D.

This meeting was sponsored by the Board of Trustees and the Council on Medical Service of the American Medical Association. The *AMA News* of December 25, 1967, gave the conference considerable coverage as did other medical publications and also the various news media. The summation of the matters discussed was reported to the Council on Medical Service for follow-up study.

Representatives, throughout the nation, of organized medicine, government, industry, social agencies, nursing, medical students, educators, consumer organizations, and others took part. A consensus from these disparate groups was understandably difficult to formulate. There was agreement, however, that the problem was too big to be solved in Chicago alone or even in Washington, but required the active cooperation of all at the community level. It is vital that every state medical society, county society, hospital staff director of medical services, and physician whether in government or private practice examine and evaluate the available local resources and then establish priorities and plan what is necessary to meet the local need.

Those of us who have practiced more than a few years are familiar with the medical aspects of poverty. The social climate in which we live has changed greatly. The greatest concentration of poverty exists as a result of the recent internal migration from rural areas to the inner core of large cities. It is more useful to recognize evidence of frustration, despair, and unrealized hopes than to debate the demographic data or argue the economic criteria for poverty levels. The conference was given a firsthand knowledge of this when its proceedings were interrupted by a protest demonstration.

Physicians in government service stated their case for new methods including crash programs of delivering medical care. Practicing physicians advocated means of more efficient utilization of existing facilities and expansion of the normal patterns of delivery, recognizing the shortage of medical and health care personnel. Representatives of the Office of Economic Opportunity described several neighborhood care centers which were developed with their financial and technical assistance. The applicability of such centers to the immediate needs of urban renewal areas which are without indigenous physicians, or blight areas from which physicians have left, is quite evident. Funding by Title XIX money could probably stabilize these efforts on a more desirable basis.

Medical student organizations were represented. They were unimpressed with past accomplishments of medicine in the interest of the poor and expressed little confidence for improvement without drastic measures.

Organized medicine, government, industry, and labor are now showing increasing concern in regard to the costs of medical care. It is vital that effective utilization and quality control programs be instituted. The need for continuous and vigorous dialogue with the community (which includes patients, agencies, and government) may prove to be difficult for the busy practitioner. And yet, challenge and change have been the natural conditions of physicians throughout the ages.

These next years should be both demanding and exciting.

# Editorials

## RESISTANT STAPHYLOCOCCI — EDITORIAL COMMENTS

Nosocomial infections due to antibiotic-resistant organisms have been a serious problem during the past two decades. In the 1950's the antibiotic-resistant *Staphylococcus aureus* was the most common cause of outbreaks of hospital-acquired infection. In the past few years the gram-negative enteric organisms have replaced the staphylococci as the principal offender. The reasons for this change are not entirely understood at the present time. The staphylococcus continues to be an important cause of morbidity and mortality in the critically ill and postoperative hospital patient.

Elsewhere in this issue, Griffith and associates report on a study of antibiotic sensitivity of staphylococci carried out from 1967 to 1965 in the Laboratories of the Veterans Administration Hospital, Batavia, New York. Their data suggests that with certain antibiotics the duration and frequency of usage determines the index of staphylococcal resistance. With a second group of antibiotics the *in vitro* susceptibility of staphylococci remains constant, regardless of duration and degree of drug usage.

This information obtained over a number of years on a nationwide basis is important for epidemiologic purposes; however, it can be misleading to the practicing physician, as it does not necessarily represent the antibiotic susceptibility pattern current in his local hospital or community. For example, this paper reports that only 30 per cent of the strains of staphylococci were penicillin-sensitive. At the present time the Wilmington Medical Center Section of Microbiology reports that 80 per cent of the clinical isolates of *Staphylococcus aureus* are susceptible to penicillin. In contrast, data available from the Delaware Division of the Wilmington Medical Center reveal that in 1958 only 20 per cent of the strains of *Staphylococcus aureus* isolated from clinical sources were penicillin-sensitive.

The Infectious Disease Research Laboratory of the Wilmington Medical Center carries out an annual survey of antibiotic susceptibility of representative strains of common pathogens isolated in the Section of Microbiology. This information is available to physicians on request. *W.J.H.*

Editor's Note: *Dr. Griffith and his colleagues are to be complimented on these extensive studies. The changing sensitivities of Staphylococcus aureus point to the need for a more frequent on-going study of antibiotics susceptibility of common pathogens. Perhaps computerization will make day-to-day tabulation possible.*

## OSLER, DELILAH, AND US

In 1897 during a speech to the New York Academy of Medicine, William Osler told the physicians there to consider the press a Delilah for "sooner or later she is sure to play the harlot and has left many a man shorn of his strength."[1] Seven years later in 1905, the harlot turned on Osler. During his farewell address at Johns Hopkins, Osler, then 60 years old, stated firmly his belief that all men, including physicians, did their best work before forty and should retire definitely and finally at sixty. He referred jestingly to the novel, *A Fixed Period* by Anthony Trollope, which dealt with a special "college" where men of sixty spent a year in contemplation before being chloroformed.

To Osler's dismay, the press created an uproar from his allusion despite the fact that his remarks were quite clearly not in advocacy of the idea. "Whether Anthony Trollope's suggestions of a college and chloroform should be carried out or not I have become a little dubious, as my own time is getting so short,"[2] were Osler's actual words.

The headlines are described as having been raucous. The letters to the editor were nasty, especially one from Senator Stewart of Nevada, who lamented the fact that Osler had been permitted to care for Senator Hanna, the Postmaster General, and other important Americans. Stewart viciously suggested that Osler's attitude had perhaps contributed to these patients dying.

In February of this year, the Delaware Medical Journal printed a letter from William T. Hall, M.D., in which he reviewed some of his own experiences with dying patients and suggested that perhaps a man's life and body should truly be his own to dispose of when he no longer wishes to live. Dr. Hall emphasized the implicit difficulty of the *well and healthy* understanding the unhappy *lame and halt*. His letter was excerpted by the Morning News and the Evening Journal. Lamentedly, their articles were smashingly headlined: *Doctor Advocates Mercy-Killing*. We are disturbed lest others of our readers and potential correspondents be intimidated by Dr. Hall's experience.

Doctors are busy. What small time they have away from their patients is apt, quite properly, to be devoted to family, hobbies and personal pleasures. For reasons as simple as personal fatigue, they are apt to stay away from voicing their opinions on important matters and especially on controversial matters such as abortion, euthanasia, or war and peace.

One of the chief purposes of this Journal of the Delaware State Medical Society is communication within its membership. Important topics are often controversial; their very importance precludes suppression of their discussion just because the controversial nature of the topic may lead to exposure of private discussion between colleagues in other, more public, pages.

We congratulate Dr. Hall for his forthright letter, for caring enough to take the time to write, and for being strong enough to be willing to be controversial.

As the poet said of Abu Ben Adam, whom you may recall wished to be remembered in the Book of Heaven simply as one who loved his fellow men, "*may his tribe increase*."

*B.Z.P.*

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## 3000 BLOOD TESTS IN MINUTES

That we are in our everyday life already deep into the age of the computer is apparent to all who charge gasoline, write checks, or attempt to decipher department store bills.

The enormity of the computer's potential in medicine can be appreciated by the set of data given recently by Dr. Kazuo Kimura, Director of Medical Research of the Atlas Company.[1] As part of experimental procedure in his laboratory, numerous "lab tests" of the type ordinarily performed for our patients in a hospital laboratory are done daily, 3000 per day on occasion.

How fast can 3000 tests be done? That depends on who or what is doing them. The chart below speaks most dramatically for itself.

| Equipment | Manpower | Time Required |
|---|---|---|
| Auto-Analyzer with Computer Calculations | 4 | Minutes |
| Auto-Analyzer with Manual Calculations | 11 | Three Days |
| Manual Analysis with Manual Calculations | 72 | 24 Days |

Russell Peterson of the duPont Company's Planning Division, speaking at the same meeting as Dr. Kimura, reminded us physicians, ". . . With the accelerating rate of change in the world around us, it becomes important to us all to keep in touch with what is going on and to participate in directing change the way we want it to do lest we become victims

*B.Z.P.*

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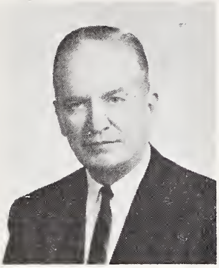

# President's Page

## HEALTH CAREER LADDERS

Most of my articles, since I became President, have been pointed toward better utilization of manpower and encouraging health career programs which would furnish the needed personnel to health facilities.

Many of our hospitals in the State of Delaware are attempting to start in-service training programs and this is very important. Although we find a variety of in-service training programs existing, individuals in the facilities can seldom make a change of real magnitude through on-the-job education or superior performance in some parochial task.

With all of the other opportunities available to our youth today it is inconceivable that young people of any kind of ability will elect to enter the health field knowing that the entry job leads nowhere. Today, it is simply not practicable to recruit and hold good people in large numbers if they are held in blind alleys. There is no doubt in the minds of most hospital administrators that the relatively frozen contours of organization are creating a severe problem of morale and motivation.

It's quite evident, however, that in order to improve morale and motivation, some rule changes are needed within our health facilities. In changing the rules to increase the quantity of care, it is very important that such rule changes do not downgrade the quality of patient care.

It is evident that the hospitals today must find a way to provide procedures whereby employees, while on their working time, can upgrade technical skills and academic credits; hospitals must also adopt official attitudes and control workloads so that employees will be assured and encouraged to take advantage of such opportunities. As a result of this effort on the part of the hospitals, an employee, while making his contribution on one rung of the ladder, will be preparing for a greater contribution at a higher one.

In this changing complex of twentieth century medicine, there is rapid skill obsolescence, because of technological changes. Therefore, it stands to reason that such preparation on the part of the employee is both beneficial and essential to him and the hospital in which he works.

If the present health system cannot provide itself with adequate personnel, it is manifest that the system must be changed. I feel it is axiomatic that a system that cannot adjust to changing conditions will perish. The public is demanding more and better medical service; employees are demanding more adequate rewards; and health management is demanding more efficient and responsive operations.

What is called for, therefore, is real management emphasis on providing the career leaders that employees demand. It calls for public and professional support for such improvements. It is very important that we in the voluntary system devise methods to encourage young people to enter the health field. We have the know-how to do it. It is important that we do this job on a voluntary basis, and not wait for someone to force us into it.

Daniel J. Preston

# In Brief

**Personal Glimpses**

Carl I. Glassman, M.D., was appointed to the Editorial Board of the Delaware Medical Journal in February . . . Delaware's Junior Miss is Ilona Elizabeth Szucs, daughter of Dr. Ilona Szucs of Milford . . . Charles Allen, M.D., Dover, and Drs. Mark C. Cohen and Charles L. Reese, III, Wilmington, were elected Fellows of the American College of Physicians . . . Frank T. O'Brien, M.D., addressed the U.S. Air Pollution Forum in March, discussing the effects of air pollution on health . . . Drs. James Beebe and Nizar Kuseybi were guest speakers in March on the topic, "Cancer," at the Lewes Village Improvement Association . . . George J. Boines, M.D. had his exhibit, The Management of the Multiple Sclerosis Patient, at the State of Michigan General Practitioner's Annual Convention, Detroit, March 12-13; and will exhibit at the New Jersey State Medical Society's Annual Meeting, Atlantic City, in May . . . A. J. Wildberger, M.D., Georgetown, was named Commander of the Indian River Power Squadron at the Twelfth Annual Graduation and Change of Watch Party . . . R. Douglas Sanders, M.D., spoke in March to the Anesthesia Department of the University of Pennsylvania on the ventilating broncoscope . . . Ali Z. Hameli, M.D., was elected to a three-year term on the Executive Committee of the National Association of Medical Examiners. . .

**Sex and Mortality**

John M. Levinson, M.D., Wilmington, discussed contraceptive pills, other means of birth control, abortion and venereal disease in the University of Delaware's fifth "*Challenge 68*" lecture. This is a series of lectures on sex and morality sponsored by various campus organizations. Dr. Levinson, who was invited to speak by the College of Nursing, said that although the "pill" is the safest and most effective form of birth control, the best means of contraception is still a matter of abstinence.

**In the News**

Dr. Pierre Leroy was elected president of the Delaware Chapter of the American College of Surgeons for 1968.

At the annual meeting of the Delaware Society of Internal Medicine on Feb. 6, 1968, Dr. R. Thomas Hall was elected President-Elect; Dr. Robert Meckelnburg, Secretary-Treasurer; and Dr. Charles Reigal, Junior Councillor. Dr. William Vandervort is President.

Felix Mick, M.D., is Director of the Intensive Coronary Care Unit at the Milford Memorial Hospital, Associate Director is John Annand, M.D. This unit serving Milford and the surrounding area, contains four beds and is designed to detect and stop developing complications of myocardial infarction. The patient now receives better attention and more careful scrutiny for less money a day, says Dr. Mick.

M. A. Tarumianz, M.D., retired Mental Health Director for the State of Delaware, was cited by the widow of William C. Menninger, President of the world-famous Menninger Foundation in Topeka, Kansas. Dr. Tarumianz was made a trustee-emeritus of the foundation at recent ceremonies.

Nicholas Destounis, M.D., upon invitation by Yale University, presented a paper dealing with the use of Marplan in depressed patients; he also presented a paper on the "*Effect of Milieu upon Depressed Patients*" at the Van Ettan Hospital in New York and was appointed consultant to the Albert Einstein College of Medicine Hospital in New York, Department of Psychiatry.

**Financial Crisis**

Medical schools in the United States face a serious financial crisis according to a report by deans and other educators at leading medical schools throughout the nation. They claim that the federal government must give substantial, direct support for medical education if the health needs of the American people are to be met adequately. .

**Deaths Redefined**

The criteria for determining when a person is dead needs some thought and perhaps revision Martin Gibbs, M.D., told a church group in Wilmington. As late as 1950, Dr. Gibbs asserted, death was pronounced when the heart and breathing stopped, and added that it needs redefining in the light of today's organic transplants and because medical science "can sustain organic life at will." Dr. Gibbs spoke in the New Castle Presbytery's continuing education series on "Christian Responsibility in a Technological Age" at White Clay Creek Presbyterian Church near Newark. Questions which he said will have to be resolved are:

1. The moral aspects of keeping alive a body after a person is really dead.
2. Legal aspects of when a person is really dead; traditional criteria are not now adequate for the job.
3. To what extent does one have proprietorship over the life he is given?

**Chronic Dialysis**

In 1968 there will be about 7000 new patients suitable for chronic dialysis, but facilities for only about 1000. What should be done about this discrepancy? Who gets to live.

The complete "Report of the Committee on Chronic Renal Kidney Disease," a fact finding committee reporting at the request of the Bureau of the Budget is available on request from Mr. Howard Seltzer, Kidney Disease Control Program, National Center for Chronic Disease Control; 4040 North Fairfax Drive; Arlington, Virginia 22203.

**Postgraduate Symposium**

A postgraduate symposium on Gastric Psychiatry and Psychophysiological disorders of the Gastrointestinal Tract will be held May 2-4, 1968, at the College of Medicine, University of Florida, Gainesville, co-sponsored by the Mound Park Hospital Foundation. Eighteen credit hours — AAGP.

**Pesticides and Publi: Health**

The Department of HEW announces Course No. 2655-N in Pesticides and Public Health, to be held May 13-16, in Atlanta, Georgia. Write to Chief, State Services Section, Pesticides Program, National Communicable Disease Center, Atlanta, Georgia 30333.

**American College of Physicians**

The ACP will present Frontiers in Gastroenterology, University of Pennsylvania School of Medicine, to be held at the Bellevue Stratford Hotel, Philadelphia, Pa., May 12-15, 1968.

On May 20-24, 1968, the ACP will present The Prevention and Early Detection of Disease in Clinical Practice, University of Pennsylvania School of Medicine, Philadelphia, Pa.

Auscultation of the Heart to be presented by the ACP May 27-29, 1968, at Hahnemann Medical College and Hospital will be held at the Sheraton Hotel, Philadelphia, Pa.

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

### Gas Embolism Produced by Hydrogen Peroxide

An incident of intestinal gangrene in a newborn infant following colonic lavage with hydrogen peroxide is described.

Repetition of this therapeutic experiment in puppies and dogs suggests that hydrogen peroxide lavage of the bowel in concentrations greater than 0.75% is regularly associated with gas embolism.

The clinical and experimental data presented here appear to demand that this potentially dangerous practice be abandoned.

Shaw, A., Cooperman, A. and Fusco, J. (St. Vincent's Hospital, New York, New York). New Engl. J. Med. 276:238-241 (Aug. 3) 1967.

### Injection of the Prostate

Retention of urine due to adenomatous enlargement of the prostate was relieved in all patients treated by injection of the prostate with a special solution. In 17 patients with urinary retention, micturition was resumed following from one to six injections (average: about two injections).

All patients were admitted to the hospital with acute or acute on chronic retention of urine which was relieved by catheter drainage initially. These patients who averaged 74 years of age, were unfit for general anesthesia because of their poor general condition, usually due to concomitant cardiac or respiratory disease. These patients were faced with a long period of tube drainage which had already been started in some of them.

The procedure involves injection of the prostate through the perineum with 2 to 3 ml of a sterilized solution containing carbolic acid, glacial acetic acid, glycerin, and distilled water. The injection is not painful, and local anesthesia was used in only 1 patient. It is not known how relief of retention is achieved by this procedure. It has not been established whether the progressive enlargement of the prostate with increasing bladder obstruction can be reversed or controlled by this method, although it is believed that this may occur.

J. J. Shipman and A. N. Akilie Brit. Med. J. 2:148, 1967.

### LSD *Chromosomal Damage*

Peripheral leukocyte cultures derived from normal, healthy persons with no history of prior drug ingestion, radiation exposure or recent viral infection showed marked depression of mitosis upon exposure to LSD (lysergic acid diethylamide). Similar cultures initiated from 22 persons who had taken LSD or who had been exposed to the drug in utero showed elevated frequencies of chromosomal abberrations. LSD users are usually inveterate experimenters with other drugs. For this reason chromosomal studies were performed on subjects exposed to phenothiazines, amphetamine, opiates and antihistamines, but not to LSD. Patients receiving chlorpromazine (Thorazine) at the time of testing (Thorazine is frequently used to stop a bad LSD "trip") showed marked increases in chromosome breaks. It is not known whether LDD and Thorazine act synergistically to produce chromosomal damage. Perhaps the danger of LSD and similar drugs lies in potential damage to the gametes. This possibility merits immediate investigation.

Cohen, M. M. et al. (Div. Human Genetics, 86 Hodge Ave., Buffalo, N. Y. Dr. Cohen), New England J. M. 277:1043 (Nov. 16) 1967.

### LSD *Teratogenicity*

It is now apparent that LSD, as well as being a potential risk to the mind of the user, may also cause chromosomal abnormalities and fetal malformations. In commenting on this situation, the British Medical Journal (4:124, 1967) raises the question whether the screening of drugs introduced for clinical use is yet adequate. Is sufficient care being taken with a new drug to determine not only its teratogenic potential but also its potentialities as a chromosome-breaking agent and mutagen? In vitro technics are now sufficently developed for these tests to be carried out. How many drugs in use today have similar effects to LSD and how many have been tested?)

British Medical Journal (4:124, 1967).

### **QUINIDINE** *Potentiation Of Muscle Relaxants*

Quinidine potentiates the neuromuscular blockage produced by both non-depolarizing and depolarizing muscle relaxants. In cats the neuromuscular blockade induced by d-tubocurarine, succinylcholine, decamethonium and gallamine was approximately doubled in intensity and duration after quinidine. Physicians who use these drugs together should be aware that increased and prolonged neuromuscular blockade may occur.

Miller, R. D. et al. (Dept. Anesthesia, Univ. California Med. Center, San Francisco, Calif. (Dr. Miller), Anesthesiol. 28:1036 (Nov.-Dec.), 1967.

### PENICILLIN-CHLORAMPHENICOL Antagonism

Clinical studies have shown a significantly higher mortality rate among patients with pneumococcal meningitis treated with both penicillin and chlortetracycline than among similar patients treated with penicillin alone. There is also evidence that patients with meningitis treated with a combination of ampicillin, streptomycin, and chloramphenicol fare less well than those treated with ampicillin alone. Because the combination of penicillin with a broad-spectrum antibiotic, usually chloramphenicol, is commonly used clinically (current texts recommend such combinations), the possibility of antibiotic antagonism was examined under experimental conditions. In vitro experiments clearly demonstrated interference by chloramphenicol with the early bacterical action of penicillin. Definite antagonism was also demonstrated in vivo when chloramphenicol administration preceded treatment with penicillin. In clinical situations, it would seem wise not to use the combination of penicillin and chloramphenicol at all if the etiology of the meningeal infection has been established. If the diagnosis is uncertain and chloramphenicol is deemed necessary because of the possibility that the meningitis is due to H. influenza or to a member of the Enterobacteriaceae family, treatment might best be started with penicillin, with chloramphenicol being withheld for at least one hour. The authors continue: "The most hazardous situation clinically is one in which a broad-spectrum drug is given for treatment of vague upper respiratory symptoms which so often antedate meningitis, particularly in children. The thoughtless, and frequently unnecessary use of antimicrobials in this situation may make the meningeal infection relatively refractory to drugs and conceivably could result in death, slow recovery, or neurologic damage."

Wallace, J. F. et al. (Beaumont Gen. Hosp. El Paso, Texas (Dr. Wallace), J. Lab. & Clin. Med. 70:403 (Sept.), 1967.

### KANAMYCIN Ototoxicity

There is a direct relationship between the dose of kanamycin administered and the concentration of the antibiotic in blood and body tissue. In contrast, the kanamycin content of the labyrinthine fluids at low dosage levels increases disproportionately when the dose is raised only slightly and attains levels therein which far exceed those in other body organs and blood. The clinical implication is obvious: kanamycin may reach ototoxic levels even when given in a dosage, based on attainment of therapeutic blood and tissue levels, which would be considered appropriate. When kanamycin is to be administered for extended periods, treatment should be suspended at intervals to permit elimination of the antibiotic from the inner ear. It is recommended that each second or third injection be followed by a rest period of one day.

Stupp, H. et al. (Univ. Dusseldorf, 4 Dusseldorf, Moorenstrasse, Germany, (Dr. Stupp), Arch. Otolaryngol. 86:515 (Nov.) 1967.

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Medical Journal

MAY, 1968
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NUMBER 4

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# MAGNESIUM DEFICIENCY IN MAN*

**• Recognition with prompt and adequate therapy of magnesium deficiency states may prevent a serious morbidity and mortality in some major syndromes. This brief report points out these syndromes and suggests areas for further study and research.**

JOAN L. CADDELL, M.D.

### Magnesium Metabolism

Adult man has about 25 gm of magnesium; about one-half of which is in the bone, one to two percent is in the extracellular fluid, and the rest is in the soft tissues.[1,2] The labile fraction of bone magnesium appears to be available to the young in magnesium deficiency, but may be unavailable in the adult. Normal plasma magnesium content is 1.4 to 2.5 mEq/liter; muscle is 20 mEq/Kg wet weight; and the normal gastrointestinal fluid concentration is about 1 mEq/liter.[1] The magnesium content of the plasma is an unreliable guide to body stores: muscle is a more accurate guide to the body content of this intracellular cation. The normal kidney is the final regulator of the body magnesium stores. In magnesium depletion, there is essentially no urinary excretion; retention of more than 30 percent of a standard test dose strongly suggests magnesium depletion.

Magnesium is essential in many reactions involving adenosine triphosphate, ATP, a high energy compound required for the energy-requiring processes of cells: muscle work, muscle contraction, osmotic work, and many biosynthetic processes including protein synthesis and the synthesis of some vitamin coenzymes, such as thiamine pyrophosphate (see review articles).[1-5]

Magnesium exists in a remarkably constant relation with other intracellular ions, and in magnesium deficiency there is intracellular loss of K, Mg, and P, and an increase in Na and Ca. This derangement is apparently not correctable until magnesium is restored, partly because of the need for magnesium in the ion transport mechanism across the cell membrane. Mg deficiency is complex.

A normal balance of Na+, K+, Ca++, Mg++, H+ and OH− are required for neuromuscular irritability. In magnesium de-

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ficiency, tremor, tetany, or convulsions may develop.

### Magnesium Requirements

Figures derived from balance studies suggest that infants require 150 to 200 mg of magnesium daily to remain in balance; most children require from 200 to 250 mg; adults, 250 to 350 mg; and pregnant or lactating women, 400 mg. These are not absolute figures, and might be inadequate for the average American.[6]

About one-third of the ingested magnesium is absorbed; the rest is excreted in the stool. Growing children retain about one-half of the absorbed fraction; adults in magnesium balance with no increased metabolic demand for magnesium excrete essentially all of the absorbed fraction. The 24-hour urinary output of children and adults would be about one-sixth and one-third of their respective intakes (see dietary table).[7]

### Magnesium Deficiency Development

Magnesium deficiency usually develops as a result of major loss of the ion for an extended period of time, usually a month or more, coupled with inadequate magnesium intake. Protein, calcium, and phosphorus, predominant nutrients of milk products, each increase the metabolic requirement for the ion, and, if magnesium is limiting, may accentuate the severity of the magnesium deficiency syndrome.[3,11]

### Gastrointestinal Losses

During diarrhea and vomiting both endogenous and exogenous magnesium may be lost from the body. Thoren has reported 6 mEq/liter to be the average magnesium content in the "abnormal fluid" of diarrhea and certain types of postoperative fluids such as ileostomy drainage. Magnesium may be high in malabsorption syndromes.[8]

### Renal Losses

Abnormal renal losses may occur following the administration of ethanol, ammonium chloride, mercurial diuretics, or chlorthiazide; during diabetic acidosis; and in certain types of renal disease. There may be large renal losses following osmotic diuresis.

### Maternal Losses During Pregnancy and Lactation

Macy has estimated that one gm of magnesium is required for fetal development and ten gm of magnesium for maternal needs. Lactation requirements exceed those of single pregnancies.[9]

### Other Losses

Additional magnesium losses may occur from infected burns and large superficial wounds, excessive sweat losses in unacclimatized persons, and diaphoresis during alcohol withdrawal.

### Symptoms of Acute Magnesium Deficiency

The initial symptoms of magnesium deficiency include hyper-irritability, nervousness, anorexia, and sleeplessness. This may be followed by tremors, general weakness, bulky stools containing undigested nutrients, and, in the child, failure to gain weight. Later changes include staring, nystagmus, oculoguric crises, tetany, or convulsions. Mental changes include apathy, confusion, hallucinations (often auditory), paranoia, or coma. Extremely ill patients may become hypotensive, hypothermic, may develop marked sinus or nodal tachycardia, gallop rhythm, and sometimes ventricular ectopic beats. Early electrocardiograph changes include asymmetrical peaking of the T waves; late changes may reveal low amplitude complexes and flat or inverted T waves. All of these changes have almost identical counterparts in magnesium-deficient animals, and all are reversed by magnesium,[3,8,10-13] when ion balance is restored.

### Chronic Magnesium Deficiency

Practically nothing is known about chronic magnesium deficiency in man, but in the animal major lesions develop in the cardiovascular system, the kidneys, brain, teeth, and skeletal muscle. The most severe pathology results from the most chronic magnesium deficiency. It seems entirely possible that a chronic low-grade magnesium deficiency might contribute to many of the pathological lesions that occur in patients who have suffered large, chronic magnesium losses.

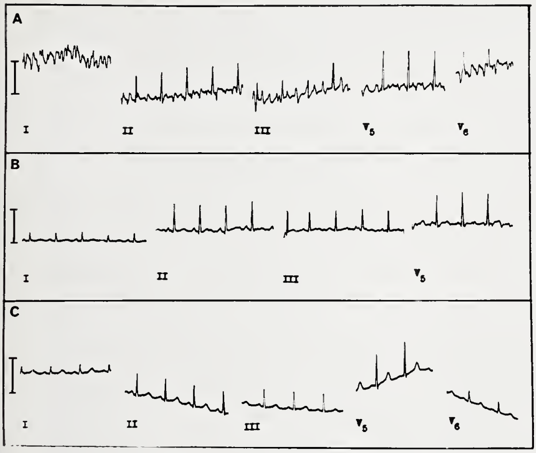

Figure 1

(A) Electrocardiogram of a 1½-year-old Nigerian girl who had developed nystagmus and tremors after two days of intravenous fluid therapy for chronic gastroenteritis. Her plasma magnesium was 0.9 mEq/liter. The symptoms subsided within five minutes of an intramuscular injection of one ml of 50 percent $MgSO_4.7H_2O$. This injection was repeated in ten hours. Tracing (B) was made within an hour of the first injection, and (C) was made within an hour of the second injection. The vertical bars indicate full standardization.

### Detecting Magnesium Depletion

The diagnosis of magnesium depletion must be made by anticipating it. Patients with severe magnesium depletion may have no overt symptoms such as tetany or convulsions; they may present instead with an ill-defined failure to thrive, with anorexia, weight loss, apathy or irritability. In such patients, some degree of peripheral edema often masks a loss of subcutaneous tissue and muscle. Stools may be large relative to the oral intake.

The plasma magnesium value may be an unreliable guide to the body store of his intracellular cation. Urinary excretion tests and muscle biopsy values are more helpful. Thoren[14] suggested a urinary excretion test: if less than 70 per cent of 30 to 40 mEq of magnesium given parenterally over an hour to an adult is excreted in the following 16 hours, magnesium replacement may be indicated.

### Magnesium Therapy

Magnesium deficiency usually occurs as part of a multiple deficiency syndrome. The aim is to provide balanced therapy: magnesium in safe, effective doses by a suitable route and other essential nutrients.

The precautions taken before giving magnesium are similar to those for potassium therapy. Patients must be well hydrated because once absorbed, magnesium is dependent upon the kidney for excretion. Since the kidney excretes unretained fractions of parenterally administered magnesium within six hours, doses may be cautiously repeated at appropriate intervals. Doses must be individualized, and parenteral therapy must be kept at a minimal dose and replaced by oral therapy at the earliest possible time.

### Some Effective Magnesium Doses

$MgSO_4.7H_2O$ (Epsom salt) can be administered orally or parenterally in suitable dilutions. One gram of this salt yields about 8 mEq of magnesium; 1 ml of a 50 percent solution therefore yields 4 mEq of magnesium. It is safe to inject a dose that will temporarily raise the extracellular fluid value about 2 mEq per liter. In the young child, this is about 0.5 mEq per kilogram of body weight, given intramuscularly.

Flink[12] successfully treated chronic alcoholic patients suffering from delirium tremens with two gm 50 percent magnesium sulfate, I.M., four to five times a day for three days,

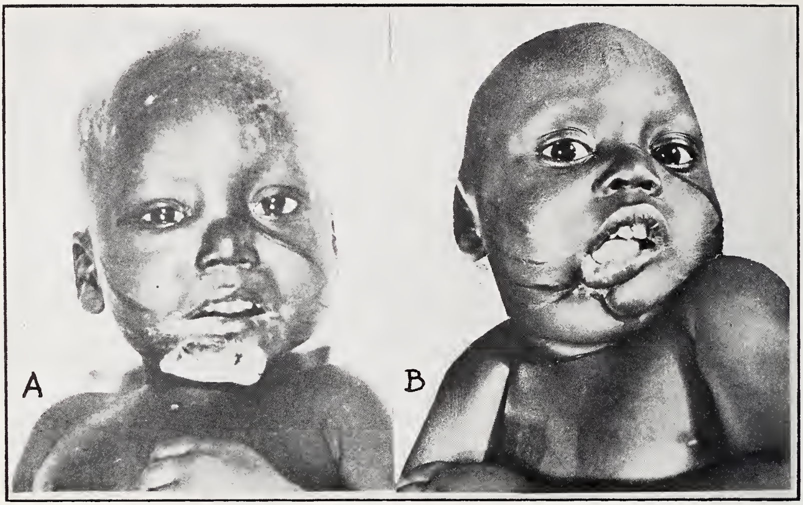

Figure 2A. This 3-year-old Nigerian boy had gangrenous stomatitis (cancrum oris or noma), peripheral edema, and cheilosis when first seen. The slanted facial markings are tribal scars. Despite antibiotics and nutritional supplements, he grew worse; three weeks later magnesium therapy was begun.

Figure 2B. Three weeks after adding magnesium therapy to the high protein-milk, vitamin enriched feeds, the lesion was healed, but there was facial distortion.

then one gm, four times a day for two to four days or longer.

Sleisenger[13] treated patients with the malabsorption syndromes with one to six grams of magnesium sulfate daily by mouth, in divided doses. Some patients require still larger doses because of impaired absorption.

Butler[15] recommended that five mEq of magnesium per liter be added to intravenous infusions of patients suffering from diarrhea, burns, alkalosis of vomiting, and post operative dehydration, and diabetic coma.

### Prevention

The magnesium depletion syndrome should be prevented in patients at risk, by replacing obvious loss just as any other essential nutrient is replaced. For example, Atwell[16] recommended the oral administration of magnesium chloride or acetate in the dose of 5 mEq per day to young infants who have had surgery of the gastrointestinal tract. He reported three infants who developed symptomatic magnesium deficiency following surgical correction of intestinal obstruction in the neonatal period. All had experienced vomiting and weight loss, one had intestinal losses of fluids by ileostomy and fecal fistulae, and all might have developed post-surgical intestinal malabsorption. The milk feeds during this period are poor sources of magnesium. Levey and his associates[17] estimated that patients with gastrointestinal drainage must receive about 300 mg (about 24 mEq) of magnesium intravenously a day to remain in positive balance.

### Summary and Conclusions

An increased awareness of the possibility of magnesium depletion should lead to more comprehensive management of a long list of disorders, including: gastrointestinal problems such as malabsorption syndrome, steatorrhea, prolonged gastroenteritis, and post-

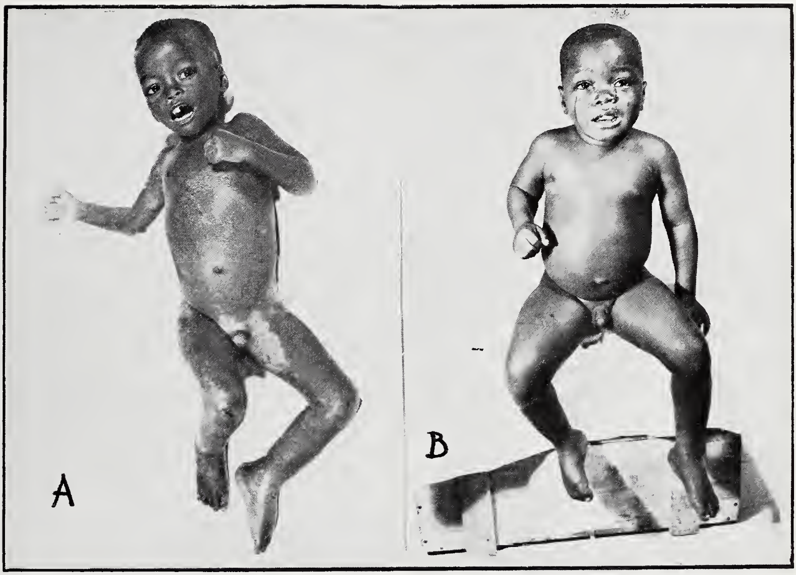

Figure 3A. This 2-year-old Nigerian boy had had severe gastroenteritis and had then developed gangrenous stomatitis (cancrum oris) with the loss of two incisors; glossitis; cheilosis, excoriation of the perineum; ulceration of the hip; and peripheral edema. He had steadily deteriorated on clinic therapy that included calcium caseinate, potassium chloride, and multiple vitamin supplements. The muscle biopsy value was 15 mEq/Kg of wet weight (20 mEq/Kg is a normal optimal value).

Figure 3B. Six weeks after adding magnesium to his therapy the lesions were all completely healed and he was rapidly gaining weight.

surgical drainage of intestinal fluids; certain chronic problems or conditions leading to increased renal excretion of magnesium, such as alcoholism, states requiring the prolonged use of certain diuretics, prolonged intravenous fluid therapy, and the acidosis state of diabetes mellitus. Persons of high parity who practice prolonged lactation should have sustained major loss of the ion. Patients on high protein-milk intake (high in milk, casein or calcium caseinate, cottage cheese, etc.) have a low magnesium intake and a high metabolic requirement because of the high content of protein, calcium, and phosphorus of such a diet. Much additional research is required to exactly delineate this important problem. Intelligent patient care precludes a consideration of the magnesium requirement.

MAGNESIUM CONTENT IN SOME COMMON FOODS

| Food | mg/ounce | mg/100 gm |
|---|---|---|
| Kellogg's All Bran | 119.3 | 420.0 |
| Brazil nuts, shelled | 117.0 | 411.0 |
| Nescafé | 116.0 | 408.0 |
| Almonds, shelled | 73.0 | 257.0 |
| Cocoa powder | 54.5 | 192.0 |
| Peanuts, shelled | 51.3 | 181.0 |
| Butter beans, raw | 46.5 | 164.0 |
| Shredded wheat | 34.1 | 120.9 |
| Shrimp | 29.8 | 105.0 |

| Food | mg/ounce | mg/100gm |
|---|---|---|
| Brown bread | 17.2 | 60.4 |
| Spinach, boiled | 16.8 | 59.2 |
| Spaghetti | 9.9 | 34.9 |
| Butter beans, boiled | 9.5 | 33.3 |
| Peas, fresh, raw | 8.6 | 30.2 |
| Beef steak, grilled | 7.2 | 25.2 |
| Chicken, roast | 6.5 | 23.0 |
| White bread | 6.4 | 22.6 |
| Peas, fresh, boiled | 6.1 | 21.4 |
| Potatoes, new boiled | 5.6 | 19.6 |
| Cabbage, winter, raw | 4.8 | 16.8 |
| Kellogg's corn flakes | 4.7 | 16.5 |
| Cow's milk, fresh whole | 4.0 | 14.0 |
| Eggs | 3.5 | 12.3 |
| Corn flour | 2.0 | 7.2 |
| Turnips, boiled | 1.7 | 6.6 |
| Peaches, canned | 1.8 | 6.3 |
| Rice, polished, boiled | 1.3 | 4.4 |
| Human milk | 0.7 | 2.3 |
| Tapioca | 0.6 | 2.0 |
| 70% proof alcohol | Trace | Trace |

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## THREE CLINICAL CENTER STUDIES

### Chronic Myelogenous Leukemia

Referrals of patients with chronic myelogenous leukemia are sought through the cooperation of physicians for a continuing study of chronic myelogenous leukemia being conducted by the Medicine Branch of the National Cancer Institute. Patients of all ages with high white blood cell counts and platelet counts are needed for studies of newer chemotherapeutic agents and as a source of white cells and platelets for *in vitro* and *in vivo* study. Contact: George P. Canellos, M.D., Clinical Center, Room 12N236, NIH, Bethesda, M.D. 20014.

### Severe Pectus Excavatum

A study of cardiac function in patients with a severe pectus excavatum chest wall deformity is being conducted by the National Heart Institute. Recent investigations suggest that cardiac function may be significantly impaired in some patients with this type of chest deformity. If further study verifies these results, such patients may be candidates for operative correction. Referrals would be appreciated of any patient between 16 and 30 years of age who has a severe pectus excavatum deformity and who complains of excessive fatigue and exertional dyspnea. Contact: Stephen Epstein, M.D., Clinical Center, Room 7-B-14.

### Constrictive Pericarditis

The cooperation of physicians is requested in the referral of patients for study of constrictive pericarditis being conducted by the Metabolism Branch of the National Cancer Institute at the Clinical Center of the NIH, Bethesda, Maryland. Of interest are patients with constrictive pericarditis associated with hypoalbuminemia and edema. Studies on these patients will be directed at determining the relationship of the hypoalbuminemia and edema to protein-losing gastroenteropathy, lymphatic abnormalities and immunological defects. Selected patients will be admitted to the Clinical Center and receive a full diagnostic workup. Interested physicians may write: Warren Strober, M.D., Clinical Center, Room 4N116,

# MANAGEMENT OF DIABETES IN SURGICAL PATIENTS

**• The incidence of diabetes has been steadily increasing. With specific medical care the diabetic patient need not be denied surgery. The morbidity and mortality will be influenced more by the condition requiring surgery than by the diabetes itself.**

Charles Levy, M.D.

The theme of this paper is a discussion of the management of diabetes in patients requiring surgical therapy. It infers that some specific or unusual problems set aside this group of patients from others. This premise is true. The diabetic patient is known to develop premature or early atherosclerosis which may rapidly progress, at times, to a very serious form. In addition, unless the metabolic disturbance is properly controlled, there may be poor healing and an increased tendency to infection. Diabetes mellitus itself does not label the patient as a poor risk for surgery; however, it must be detected in order to be treated. With the increased awareness of and the search for diabetes by physicians, it is fortunately rare that surgical treatment has to be postponed because of unsuspected diabetes first being suspected by the finding of glycosuria. On occasion one will find a patient who will deny the well recognized or usual symptoms of diabetes but will present with complaints of one of the complications such as diabetic neuropathy or nephropathy or symptoms referable to the eyes.

According to the American Diabetes Association[1] there are approximately 2.6 million known diabetics in the United States with approximately an additional 1.6 million who are unaware that they have the disease. Approximately 80% of these individuals are 45 years of age or older, and 40% are 65 years or older. Moreover, it has been estimated that there are an additional 5 million persons who are considered to be potential diabetics and who will eventually develop the disease. This indicates a marked increase in the incidence of diabetes mellitus. It can be explained, in part, by the advancements made in the care of the diabetic patient who is spared an early death in coma and is able to live a longer and more useful life. The average age of death in the diabetic has risen from 44.5 years in the pre-insulin days to 64.7 years in mid-century. At the present time the diabetic patient has an almost normal life expectancy. This has been due to the tremendous strides that have been made by the medical profession. The most important factor is insulin therapy. The surgeon has developed skillful techniques. Better anesthetics have been discovered and they are in the expert hands of trained anesthetists. Infections can now be controlled with specific antimicrobial therapy. Blood and blood products are readily available when necessary. Diet, fluid and electrolyte balances are now better understood. A thorough pre-operative medical survey, including a good personal history and family history, is indicated. The diabetic patient need not be denied necessary surgery. When the diabetic state is complicated by acidosis or coma, special care is necessary. One should include dietitian and nursing personnel to round out the team for the total care of the diabetic patient. In an early series reported by Shumann[2] no deaths di-

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rectly resulting from diabetes occurred in a series of 340 patients.

### Selective Surgery

If the surgical procedure can be done under local anesthesia, there may not be a need for alteration in the daily routine if no change in the intake of food is anticipated. The patient has his usual meals and the usual dose of insulin.

### Pre-operative Care

Prior to surgery the general condition of the patient must be thoroughly evaluated. The patient must be known as an entity.[3] In this pre-operative period the blood count, blood sugar, urea nitrogen, prothrombin time, and an electrolyte survey are done. An electrocardiogram is taken so that a baseline tracing is on hand. During this period the diabetic condition is stablized with a well nourishing diet and adequate amounts of insulin if time permits. Ample protein and carbohydrates are given to replenish hepatic glycogen and tissue protein stores. Frequent blood sugars are taken as well as urinalyses before meals and upon retiring to determine the amounts of glucose lost in the urine. The need for changes in the insulin dosage for the next day is thus determined. It is important to remember that with altered renal threshold one may have an absence of sugar in the urine with a very high blood sugar. A diabetic patient should be given special consideration in regard to scheduling and should be scheduled early in the morning. As for insulin dosage, Danowski[4] suggests the patient be given two-thirds his usual dose of long acting insulin half an hour before an intravenous infusion of five or ten per cent glucose in water is given on the morning of surgery. Regular insulin is not given unless the dose is more than 20 units and then about half of this amount is advisable. Duncan[5] recommends 25% of the usual insulin dose whereas Williams[6] recommends 50% of the previous day's dose of insulin. The amount of glucose given intravenously should approximate the carbohydrates of the patient's average breakfast as replacement. The protein and the fat content are disregarded. Repeated infusions are sometimes necessary if the surgical procedure is lengthy. Insulin coverage of these additional loads of glucose may be necessary as the patient has been given a reduced dose of long acting insulin pre-operatively. One is guided by the results of frequent urinalyses for sugar and acetone and by repeated blood sugar estimations. A blood sugar post-operatively is advisable as it may indicate the need for additional doses of crystalline insulin. Each report must be properly evaluated as an infusion of the glucose may still be running. Glycosuria may also be due to adrenal medullary or cortical responses to the surgical procedure. Insulin should not be given in the infusion as this renders the dosage too uncertain.[7,8] The infusion may run into the tissues or it may be stopped. In this way the patient may have received insulin but may not receive the total amount of intravenous glucose. Variations of glucose metabolism are difficult to evaluate in the presence of hypovolemia when the patient is anesthetized. Insulin is best given subcutaneously or directly intravenously.

As soon as the patient can tolerate food and fluids by mouth, dietary planning must start. Duncan[5] divides the day into four periods of six hours each, and the patient receives four equal feedings with a dose of crystalline zinc insulin preceding each feeding. Glycosuria in the previous six hours is measured and the next dose of crystalline zinc insulin is thus determined. The patient is usually started first on clear liquids, then the diet is subsequently increased as tolerated. When the patient can take regular meals, he is placed on the usual three meals a day with a bedtime or evening snack. The total 24-hour requirement of insulin can be given as one dose of long acting insulin or as an insulin mixture usually using NPH and crystalline insulin. Changes in the doses of insulin are made as indicated, influenced by the patient's increased food intake. A long acting insulin is given in the morning, and one can then cover glycosuria with regular insulin several times a day until the patient is under good control. Insulin requirements may vary with the changing metabolism and activity during the patient's progressive convalescence. Recovery from a diseased state may improve carbohydrate metabolism. This must be kept in mind and lessened insulin requirement must be anticipated. The insulin dosage must be reduced before overt evidence of hypoglycemia occurs.

If the patient requires intravenous feedings on many post-operative days, it may be given in doses of 750 cc of fluids every six hours, or more, if necessary, to correct large fluid losses. Regular insulin can be given hypodermically several times a day or a maintainence dose of long acting insulin prescribed with small amounts of regular insulin to be given during the day as required. One must keep in mind the danger of hypoglycemia and recognize that it out-weighs that of slight hyperglycemia and glycosuria.[9] In addition to an adequate fluid balance, the acid base balance must not be neglected.

Oral anti-hyperglycemia drugs should never be used when complications such as ketosis or infections are present. If a patient has been on oral drugs, he may continue to be unless a change is indicated by an elevation in the blood sugar or if intravenous feedings are necessary.

### Anesthesia

The anesthesiologist is an important member of the team taking care of the diabetic patient during surgery. Hypoxia must be avoided and there must be the least disturbance in the carbohydrate metabolism. Pre-operative medication is important. In view of the fact that morphine produces nausea and vomiting so frequently, it is best to use Demerol. For major surgery, spinal anesthesia[10] may be advantageous because following surgery the patient may be able to accept food more promptly. Cyclopropane is preferred to ether as there is less nausea and vomiting following the use of the former. Induction with sodium pentothal may be used with due caution. It is considered by some highly desirable except in the presence of known liver disease and in the older age group of patients.

### Emergency Surgery

At times an emergency operation must be performed on a diabetic patient. A known diabetic patient may suddenly develop an acute abdominal condition and develop acidosis as a result of the nausea and vomiting. A stabilized diabetic patient may get into trouble because of a very severe infection. Another problem is one that involves a patient whose diabetes is unsuspected and suddenly, because of severe illness, shows evidence of acidosis or may be found in coma. No delay in surgery is necessary unless the problem is complicated by ketoacidosis. If so, surgery may have to be postoned while the acidosis is corrected. During this interval, energetic treatment with insulin and fluids to correct or re-establish the fluid and acid base balance is given. Blood replacement is also used if necessary during this early interval. Adequate doses of antimicrobials are given to combat infection as indicated. Insulin is the most specific single agent. It is given as crystalline insulin and in large enough amounts to control the ketoacidosis.

At times a differential diagnosis between acidosis and an acute abdominal condition may be quite difficult to make as both are characterized by abdominal pain which may be local or diffuse. There may be nausea and vomiting, leucocytosis and tachycardia. A good history is valuable for the differential diagnosis. If polyuria and polydipsia preceded the abdominal pain, diabetic acidosis is more likely. Needless to say, a person may be in diabetic acidosis and also have generalized or localized peritonitis. In the diabetic, if pain persists even though the acidosis has been corrected, the illness may be one requiring surgical therapy. This wait for several hours gives time to re-evaluate the picture and to correct the acidosis with insulin and fluids.

### Post-operative Care

Early ambulation is as important in the diabetic patient as in the non-diabetic patient. In view of the marked atherosclerosis, especially of peripheral vessels, one must be ever watchful for pressure sores. Deep breathing, coughing, and frequent changing of the body position are necessary. A record of the total intake and output of fluids is very helpful in following the course of the illness. During the convalescent period, frequent consultation with the dietetic staff to provide food attractive to the patient is advisable.

### Summary

The diabetic patient need not be denied surgical therapy when it is indicated. Under close supervision and good control, the morbidity and mortality is related more to the disease which requires the surgical procedure than the diabetes itself. In the care of the diabetic one must be extremely cautious in view of the severe cardiovascular disease and atherosclerosis which may be present. Intravenous drips should be given slowly, being careful not to overload the cardiac patient. One must be careful in the use of whole blood especially in those patients with definite renal disease as acute pulmonary edema may ensue. Many therapists permit a slight hyperglycemia rather than subject the patient to insulin reaction which may lead to shock and myocardial infarctions. The estimation of the hematocrit and hemoglobin will assist in establishing or evaluating the fluid needs. The susceptibility of the diabetic patient to infection must always be kept in mind. The routine use of an in-dwelling catheter is deprecated. It is certainly to the patient's best interest that a close cooperative effort exist involving the surgeon, the internist or the general practitioner interested in diabetes, the anestheologist, the dietitian, and the nursing personnel. The combined efforts of this entire team interested in the total care of the patient will bring best results with the return of the diabetic patient to a full and complete recovery. Finally, good control must be the objective of every physician. The prognosis depends on the standard of control.

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## SUPPER ANYONE?

"Although still in the *rudimentary* and theoretical stage, a system has been devised by Bernard H. Goldner and Herbert P. Silverman in which H. *eutropha* (Hydrogenomonas eutropha, an organism that has come to light only during the past decade) would be fed by materials derived from water electrolysis and from astronauts' wastes. For the past three years, the research team has been constructing a device to automatically produce, harvest, and convert the bacteria to palatable food. When grown, the bacteria would pass into a separate unit for processing into food. Possibly in the form of a cracker, it would then be returned to the astronaut.

Dr. Goldner will seek answers to such questions as whether H. eutropha can form the total diet of a human being or might serve as an intermediate food for fish or fowl; whether the bacteria are genetically and physiologically stable enough to serve as a continuous source of food over long periods; and whether this type of bioregenerative life-support system can be engineered to operate in the environment of space.

As yet, he points out, although no human beings have been tested on this food, animals have been. (Excerpted from Dateline in Science, Jan. 6, 1968.)

# ACUTE PYELONEPHRITIS DURING PREGNANCY

## with Anuria, Septicemia and Thrombocytopenia

- **Presentation of a case with discussion of several complications and pertinent statements from recent medical literature.**

Ralph W. Bubeck, M.D.

One of the most common complications arising during pregnancy is pyelonephritis. This occurs in approximately 2% of all pregnancies.[1-3] The infection usually occurs bilaterally after the fifth month; if unilateral, the right kidney is most frequently involved.[1] Some investigators feel that many patients have asymptomatic bacteriuria prior to the clinical onset of pyelonephritis which can be demonstrated on the first prenatal visit.[4] Other studies have shown that patients with previous episodes of pyelonephritis are particularly prone to have exacerbations during pregnancy.[5] The following case illustrates many of the dangers and severe complications that may result from pyelonephritis in a pregnant patient.

### Case Report

A gravida IX, para IV, abortis IV, 26-year-old woman was seen for her first prenatal visit on July 20, 1966. She was at 8-week gestation with an expected date of confinement of February 15, 1967. A history of previous urinary tract infections was obtained and pyuria was present. The patient remained asymptomatic, however, until early December when dysuria, back pain, chills, and fever developed. Urinalysis revealed continued pyuria with bacteriuria and a culture was said to grow a gram-negative organism. She was placed on a sulfamethizole-oxytetracycline combination (Urobiotic®) with apparent improvement. On January 3, 1967, despite continued use of the medication the symptoms recurred, associated with hypotension and cyanosis. Admission to the local hospital was immediate. Urine and blood cultures were obtained on admission and parenteral chloramphenicol was administered. Although normotensive after admission, the patient remained toxic, with fever, tachycardia, and oliguria despite large volumes of oral and intravenous fluids. She was transferred to the Delaware Division of the Wilmington Medical Center on January 7th for further therapy.

Upon arrival at the Delaware Division the patient was acutely ill but still alert. Physical examination revealed tachycardia, temperature 102 F, pallor, a trace of pitting edema of the ankles and a blood pressure of 110/80 mmHg. Some left costovertebral angle tenderness was noted; the uterine fundus was at the umbilicus and the cervix soft; no fetal heart tones were audible. Initial laboratory work revealed serum electrolytes to be as follows: Sodium was 119 mEq/liter, potassium 3.4 mEq/liter, chloride 94 mEq/liter, and $CO_2$ combining power was 6 mEq/liter. The BUN was 45 mg/100 ml and the hemoglobin level 9.8 gms%. Culture reports from the referring hospital revealed *Proteus* species in the urine and blood, sensitive to chloramphenicol. It was decided to continue this drug at a dose

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TABLE 1

Blood Chemistries During Admission and After Discharge

| DATE (1968 | 1/7<br>3 pm | 1/7<br>11 pm | 1/8<br>8 am | 1/8<br>6 pm* | 1/9 | 1/13 | 1/16 | 1/21 | 2/6 |
|---|---|---|---|---|---|---|---|---|---|
| BUN | 45 | | 59 | 27 | 45 | 104 | 93 | 55 | 13 |
| Creatinine | 7.2 | | | | | | 1.4 | | 1.0 |
| Uric Acid | 13.8 | | | | | | 6.6 | | |
| Plasma $CO_2$ | 6 | 10 | 10 | 13 | 20 | 14 | | 19 | |
| Plasma Cl | 94 | 94 | 93 | 99 | 96 | 98 | | 108 | |
| Plasma Na | 119 | 124 | 133 | 141 | 140 | 138 | | 137 | |
| Plasma K | 3.4 | 3.4 | 3.4 | 3.8 | 3.5 | 4.6 | | 5.3 | |

*Post Dialysis

of 1.0 gm every 6 hours intravenously. Five percent sodium bicarbonate was started intravenously and 1000 ml of this was given during the first 12 hours of admission. After 12 hours the patient was dialyzed using the twin-coil hemodialysis equipment for a period of 6 hours. Serum electrolytes and BUN improved with this procedure (Table 1) and labor was then induced with synthetic oxytosin. After a labor of only one hour, a viable 4 lb 7 oz female infant was delivered. The urine output increased slightly after delivery; the patient, however, remained oliguric. On the second morning after admission the patient was extremely toxic, lethargic and continued to hyperventilate. Her temperature rose to 104F and it was quickly decided in consultation with the Infectious Disease Department that hypothermia was indicated and that cephalothin 1.0 gm every 2 hours should be substituted for chloramphenicol. Within 8 hours the patient improved dramatically and the hypothermia was discontinued. After 48 hours she was afebrile and spontaneous diuresis began.

At that time Ecchymoses developed on her arms and by January 11th hematuria as well as epistaxis developed. Severe thrombocytopenia (Table 2) was found to be present. On January 13th the hematology consultant felt, after further laboratory studies, that the thrombocytopenia was probably secondary to the gram-negative septicemia. Prednisone 60 mg daily was begun and ampicillin 4.0 gm daily was substituted for the cephalothin. The platelet count was 15,000/cmm on January 13th, but thereafter it returned to normal levels (Table 2). With diuresis and control of infection her BUN dropped from 111 mg/100 ml on January 14th to 17 mg/100 ml at the time of discharge on February 6th. On January 28th a generalized macropapular, pruritic rash developed and ampicillin was discontinued. Mandelic acid 1.0 gm four times daily, which had been initiated on January 25th, was continued.

An intravenous pyelogram on January 26th revealed caliectasis on the right and ureterectasis, as did repeat studies at 6 week and 12 week intervals, but of a decreasing degree. Urine cultures on January 13th, 15th and 24th revealed no growth as have all subsequent cultures. The initial pyuria and albuminuria cleared almost completely (Table

TABLE 2

Hematology During Admission and Since Discharge

| DATE 1968 | 1/7 | 1/10 | 1/13 | 1/16 | 1/20 | 3/16 |
|---|---|---|---|---|---|---|
| Hgb. | 9.8 | | 8.1 | 8.7 | 8.8 | 11.0 |
| Reticulocytes | | | 0.4 | 0.3 | | |
| Platelet Ct. Capillary | Venous<br>90,000 | 98,000 | 15,000 | 36,000 | 147,000 | 159,000 |
| WBC | 19,000 | 12,000 | 12,000 | | | 8,200 |
| Segmented Polys. | 93% | 83% | 82% | | | 75% |

3). A retrograde pyelogram after 6 months revealed a mid-ureteral constriction, not thought by the Urology Department to be etiologic in the residual collecting system dilitation. At present the patient is well; cultures will be taken of the urine every three months and the intravenous pyelogram repeated in one year.

**Comment**

During the past fifteen years much has been written concerning asymptomatic bacteriuria and its relation to pyelonephritis during pregnancy.[3,6] Little[6] states that pyelonephritis develops in 2 to 4% of pregnant women, that the incidence of bacteriuria is 5.5% and that 36% of those with untreated bacteriuria will develop pyelonephritis. Kass[7] has reported similar figures. However, Kemmelsteil[7] feels that these figures may be misleading and asymptomatic bacteriuria is being treated before the etiologic relationship is fully established. It is generally agreed that a previous history of repeated urinary tract infections is ominous and if cultures are positive, specific antibiotic therapy is indicated despite lack of symptoms.

The importance of specific therapy, is clearly exemplified in this case. Initially the organism was erroneously thought to be sensitive to tetracycline and chloramphenicol. The problem of interpreting the *in vitro* sensitivities is evident in that the first cultures were read as sensitive to these drugs and subsequent cultures revealed resistance to them (Table 4). The clinical response to cephalothin was dramatic and its effectiveness was indicated subsequently by *in vitro* sensitivities (Table 4).

Tetracycline used during pregnancy has been shown to be hepatotoxic and nephrotoxic.[8] The literature describes three syndromes of tetracycline nephrotoxicity. A Fanconi-like syndrome may be seen with nausea, acidosis, proteinuria, glucosuria, and aminoaciduria. This may result from toxic products of degeneration most often found in outdated samples of the drug.[9] A second syndrome develops with pre-existing azotemia and is manifest by rising BUN, acidosis, electrolyte imbalance and death.[10] A third syndrome described in pregnant or postpartum women is manifested initially by acute fatty liver changes, including necrosis, and/or pancreatitis; progressive azotemia; acidosis; and hyperkalemia with normal and sometimes excessive urine volumes develop before death or recovery. If treatment with tetracycline is necessary in the azotemic patient, the dosage should be modified according to Kunin's work,[11] and used intravenously only as an emergency. In no event should more than 1.0 gm be given daily. Avoidance of this drug

TABLE 3

Urinalysis Data

| DATE 1968 | 1/8 | 1/13 | 1/15 | 2/6 | 3/16 |
|---|---|---|---|---|---|
| Reaction | Alk. | Neut. | Alk. | Acid | Acid |
| Specific Gravity | | 1.008 | 1.009 | 1.009 | 1.010 |
| Albumin | 4+ | 4+ | 3+ | 1+ | Trace |
| WBC/hpf | TMTC* | 8-10 with clumps | 5-6 | Rare | Rare |
| RBC/hpf | TMTC* | TMTC* | 6-8 | 10-12 | 8-10 |

*Too many to count

is indicated in pregnant women with kidney infection. Acidosis, some feel, may produce *in vivo* toxic degradation of the drug and therefore may represent a contraindication to its use.[8]

In our patient, the induction of labor was felt to be indicated for several reasons. It was hoped that reduction in ureteral obstruction by evacuation of the uterus would be obtained. Secondly, the catabolic load produced by pregnancy would be reduced by delivery. Finally, drugs to treat the infection and effect diuresis may be toxic to the fetus and could be used safely once delivery was accomplished. All of these reasons plus the hope for a viable fetus, made induction of labor at 35 weeks gestation appear necessary. Dialysis was performed to adjust the electrolyte imbalance and reduce acidosis as much as possible thereby decreasing the chances of maternal and fetal mortality.

The occurrence of thrombocytopenia in this case may have been caused by several different mechanisms. Sulfonimides and chloramphenicol as well as thiazides can cause thrombocytopenia.[12,13] Gram-negative bacteremia probably produces thrombocytopenia more frequently than generally realized.[14] This may be the result of "a selectively greater effect of bacteria or endotoxins on platelets than granulocytes, or a larger granulocyte reserve permitting compensation for possible peripheral destruction and, in turn, an appropriate peripheral response to infection."[14] The presence of hyperplasia of the bone marrow in this case lends support to septicemia as the main cause of the thrombocytopenia, rather than drug toxicity. $Cr^{51}$ lifespan platelet data in one of six cases reported by Cohen and Gardner[14] revealed shortened life of platelets suggesting rapid destruction. The presence of *Proteus vulgaris* in blood cultures of two of their cases, in the sputum of a third and in an abscess of a fourth also support the impression that proteus septicemia may produce thrombocytopenia.

Urinary tract obstruction, as evidenced by dilitation of the right collecting system in the patient, is one of the main etiologic factors leading to pyelonephritis according to many authors.[5,15,16,19] Ureteral dilitation occurs in nearly 100% of pregnancies and usually returns to normal within six weeks after delivery.[17] Uterine pressure plus the severe infection in the case presented may be responsible for the slow return to normal of the dilitation; however, residual change and unilateral involvement suggest some as yet unknown etiologic factor.

TABLE 4

Disc Sensitivities
of Proteus Mirabilis
(cultured from blood and urine)

| ANTIBIOTIC | BLOOD | URINE |
|---|---|---|
| Chloramphenicol | R | R |
| Tetracycline | R | R |
| Ampicillin | S | S |
| Cephalathin | S | S |
| Kanomycin | S | S |
| Streptomycin | S | S |

R=Resistant S=Sensitive

An interesting point in differentiating anuria due to acute tubular necrosis from anuria due to acute pyelonephritis, is the earlier diuretic phase in the latter following control of the infection and relief of obstruction by clearing of edema and purulent material. This may occur in a matter of hours or a few days.[18,19] In acute tubular necrosis, the diuretic phase does not begin for three to ten days and occasionally not until the 25th day.[20] Restoration of normal function, as evidenced by clearing of cells and protein in the urine, is usually seen earlier in impaired renal function due to acute pyelonephritis than in that due to acute tubular necrosis.

## Summary

A case of acute pyelonephritis and septicemia due to *Proteus* during the third trimester of pregnancy is presented. Anuria, acidosis, and uremia quickly developed and did not respond to treatment which included antibiotics, hemodialysis, and induction of labor. With the institution of specific antibiotic therapy, improvement was dramatic and renal function was restored. Thrombocytopenia thought to be secondary to gram-negative septicemia developed, but responded with control of infection and supportive measures. The association of bacteriuria, and pyelonephritis, during pregnancy is discussed, as well as the contributing factors of previous urinary tract infections and obstruction.

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## ACP GROUP INSURANCE

The United States Bureau of Labor Statistics has recently reported increases in health care costs by 6.7% during the first six months of 1967. This increase included an increase of 10.1% in hospital daily service prices. Mr. Richard L. Durban, Administrator, Temple University Hospital, Philadelphia, in a recent talk, said that the "best predictions at this time" show hospital costs escalating 15% this year, another 15% in 1968, 10% in 1969 and 6% in 1970. "By 1970," he said, "the costs will reach $100.00 per day in most general hospitals."

# Highlights

## HOSPITAL ACQUIRED INFECTION

Raymond C. Bartlett, M.D., *Hartford Hospital. Medical Conference, Wilmington Medical Center, November 7, 1967*

It is estimated that throughout the United States, there is an incidence of 5 to 10% of infection acquired during hospitalization. If a patient who develops a hospital infection has his hospitalization subsequently prolonged by 5 to 10 days (which is a conservative estimate), this represents approximately 18,000 patient days per year in a hospital complex the size of the Wilmington Medical Center. Assuming that hospitalization costs approximately $40 per day, this is a loss of $72,000 per year to the community in general.

The problem of detection and prevention of hospital infection is complicated by the frequent feeling that hospital infections are chiefly a problem of epidemics rather than an endemic problem with a continuing morbidity. Methods of detecting the incidence of hospital infections vary but it has been shown that the most efficient method involves delegating the responsibility to one specific person, most efficiently a nurse-epidemiologist. As with many intra-hospital problems involving all types of hospital personnel, the problem of communication is a great one. Busfield's first law, "distortion always occurs when ideas are transmitted and increases proportionately with the size of the organization," is unfortunately most applicable with respect to policies toward prevention and treatment of hospital infections. Most surveillance systems for infection are inefficient and the efficiency has been shown to fall off with time unless one person, the nurse-epidemiologist, makes daily hospital rounds.

The factors which predispose to the acquisition of hospital infection may be divided into patient, personnel and environmental factors. The more sick and more elderly the patient, the more apt he is to acquire an infection and as more complicated surgery which often includes increased instrument usage is more frequently performed there can be expected to be increased bacterial colonization of hospital patients.

Personnel factors in hospital infection are extremely important. Important personnel factors include: excused leave with pay when personnel are themselves found suffering from an infection, careful attention to handwashing, and obedience to the rules regarding street clothing versus specialized hospital clothing in the operating room.

Environment standards for cleanliness are becoming more rigidly defined. Bacteria in operating rooms come from people and may be referred to as "people fallout." If an empty operating room is surveyed, the colony count per cubic foot of air should be less than one or two colonies per cubic foot. This count increases to five to ten colonies per cubic foot during cleaning or during a surgical procedure and increases directly as the number of personnel in the operating room increases. Infection level is felt to be over 20 colonies per cubic foot and a limit of less than 10 is a level to be strived for. Colony counts from floors in hospitals should be less than seven per square centimeter with counts greater than 10 per square centimeter considered as unacceptable. Counts as low as one to two colonies per square centimeter are indeed attainable. Other environmental factors include such things as inhalation therapy devices, many of which are a problem to keep clean.

The criteria for isolation should be rigidly defined and adhered to. Most imperative to isolate are draining infections, especially staphylococcus or pseudomonas. Patients particularly to be isolated are those in a multiple bed unit with soaks or dressings which require frequent changes. A single room for such patients is the most important factor in infection control. Gowns and masks are less important than compulsive hand-washing on the part of their attendants. The question of whether rugs or bare floors are more apt to be "clean" has apparently been resolved in a draw; carpet neither increases nor decreases the hazard of infection. Because hepatitis is an enteric-borne infection, gown and mask isolation is not important but hand-washing and single room hospitalization with individual bedpans for the particular patient are.

In a recent study of 24 infected patients at the Hartford hospital, nine were found not being isolated at the time of reporting. Four of these were immediately isolated, five others had isolation suggested by the nurse-epidemiologist. There was physician acquiescence in three of these five, and one patient was discharged before isolation could be established. In another, immediate isolation could not be achieved because no single room was available. After considerable discussion with the admitting office and shifting of patients, isolation was accomplished.

As the frequency of immunosuppressive therapy following organ transplants or for malignant disease increases, the incidence of protective isolation (or reverse isolation) in hospitals will also increase. In this type of isolation, gown and mask technique is important. At the Hartford hospital, there are presently as many patients in protective isolation as are isolated because of infection.

The problem of where to put the infected patient who is seriously ill is not an easy one to solve. Because each ICU, be it cardiac, postoperative, etc., has its own personnel experienced in care of that type of patient, it is not feasible to provide the infected patient with good care if he segregated on the basis of his infection. It seems more reasonable to provide each type ICU with single bed units which can be treated as isolation units within the ICU itself.

Since it has been well established in numerous studies that 40% to 50% of all hospital personnel carry Stapholococcus aureus, it is useless to routinely culture hospital personnel. Rather, emphasis on preventive techniques and adequate isolation of the patient who becomes infected remain the cornerstone of control in the hospital.

## USE OF ANTIDIABETIC AGENTS

Charles R. Shuman, M.D., *Temple University. Medical Conference, Wilmington Medical Center, October, 1967*

There are various classifications of diabetes. One, recently announced by the World Organization, is based on age at onset. Other classification systems are based on the severity of the diabetic process at the time of diagnosis: prediabetic, latent, asymptomatic, and clinical. Dr. Berson's classification of diabetes is based on insulin output: maturity onset diabetes is high insulin output diabetes whereas acute juvenile diabetes is low output.

A better understanding of the relationship between diabetes and obesity has been achieved by studying insulin production. High levels are present in the obese patients in whom glucose uptake by the cell seems to be inhibited resulting in an increased stimulus to insulin release with resulting increased lipogenesis and increased triglyceride deposition. Obesity defined as a body weight 20% above standard and a skin-fold pinch greater than ¾ inch is present in 80% of mature onset diabetics. The cornerstone of therapy for the obese diabetic remains diet; diet alone may be the only therapy necessary for the obese and the elderly diabetic. Sulfonylureas are added if hyperglycemia persists despite decreased weight and proper diet, but providing no ketosis is present. Insulin therapy is prescribed for all children, pregnant women, acute complications, ketotic patients, most young adults, and insulin dependent adults.

Phenformin (DBI) may be of help after primary or secondary sulfonylurea failures. It has also been used, but not too successfully, to smooth out insulin action in brittle diabetics. In the mild, obese diabetic it is thought to promote weight loss and appetite depression. One of its actions seems to be the blockade of aerobic glycolysis with subsequent increase of cell permeability to glucose resulting in a thus decreased glycogenesis. There is at present some evidence that latent or chemical diabetics may have the onset of clinical diabetes deferred by the administration of oral hypoglycemic agents.

Although sulfonylureas have been administered to pregnant women with no increased incidence of neonatal abnormality, they are presently not approved by the FDA because of insufficient clinical experience and it therefore may presently be advisable to change a pregnant woman from sulfonylureas to insulin during her pregnancy and to treat diabetes of pregnancy with insulin rather than sulfonylureas.

Side effects with the hypoglycemics are not usually a problem. Since Orinase is metabolized in the liver, it may accumulate in abnormal amounts resulting in severe hypoglycemia in patients with hepatic insufficiency. Diabinese and Dymelor are excreted by the kidney. The hypoglycemia occurring in some patients with these agents may persist as long as five days, indicating that the mechanism is not merely retention of the drug but a suppression of hepatic gluconeogenesis. Phenformin (DBI) is associated with a somewhat increased incidence of side effects. Chief among these are dyspeptic symptoms including an unpleasant metallic taste. Most dangerous is lactic acidosis after excessive alcohol ingestion secondary to altered DNP production.

Tolbutamide (Orinase) seems still to remain the hypoglycemic agent of choice for most maturity onset diabetics requiring drug therapy, with acetohexamide and chlorpropamide being used for the more severe patients or in cases of secondary failure. Primary success may be achieved in 60 to 65% of such patients. Secondary failures occur in 20 to 25%; treatment with a second agent will achieve therapeutic success in approximately 20% of these.

In insulin dependent diabetes, the appropriate insulin as well as its frequency of administration can only be chosen by a knowledge of the onset, peak and duration of the various insulins as indicated in the chart below:

| INSULIN | ACTION | (HOURS) | |
|---|---|---|---|
| | Onset | Peak | Duration |
| Regular insulin | 1 | 2 | 4 |
| Semi-lente | 1-½ | 4 | 6 |
| Ultra-lente | 6 | 18 | 36 |
| Lente | 2 | 8 | 24-30 |
| NPH | 2 | 8 | 24-30 |

## PULMONARY EMBOLISM

Arthur A. Sasahara, M.D. — *V.A. Hospital, West Roxbury, Mass.* *Medical Conference, WMC, February, 1968*

The clinical spectrum of pulmonary embolic disease (PED) is broad. Diagnosis is based on history, physical, and various laboratory measures which include enzyme studies, pulmonary function tests, arterial blood gas assay, lung scans, and pulmonary angiography. Of these studies the latter two, scanning and angiography, are the most helpful for definitive diagnosis.

When a high index of suspicion for PED exists, the earlier statistics that show only 32% of PED diagnosed premortem can be markedly improved. As diagnostic accumen increases, it has become apparent that the classic triad of chest pain, cough and hemoptysis is not present in the majority of patients.

Approximately 60-70% of our patients with PED had underlying heart disease and another 30% had chronic obstructive pulmonary disease. PED is frequently misdiagnosed as congestive heart failure, myocardial infarction, pneumonitis, or progressive chronic lung disease. The only consistent symptom in our series of 80 patients was dyspnea which was present in nearly 100%. Cough was also a frequent symptom, but pleuritic pain and hemoptysis were present in fewer than one-half so that hemoptysis can no longer be considered a *sine qua none* for the diagnosis of PED. Physical signs most commonly encountered with PED were tachypnea, tachycardia, loud P2 and rales — all non-specific cardiopulmonary signs.

Initial laboratory studies showed that the total WBC was seldom elevated to greater than 10,000 - 15,000. In recent years paired enzyme studies and a biochemical "triad" were thought to be specific for the diagnosis of PED. LDH increase with normal SGOT as an "enzyme pair" was found in only 60% of our patients with PED; another 25% showed no change in either enzyme and 5% showed an increase in both. Fewer than 20% of PED patients in our series showed the triad of increased LDH, normal SGOT and increased bilirubin. When the bilirubin in this triad is elevated, it is generally associated with congestive heart failure.

Despite the absence of visible cyanosis, oxygen tension is significantly decreased in most patients with PED; oxygen saturation is less sensitive an index than oxygen tension. $CO_2$ tension tends to be low because of the hyperventilation common to these patients. Twenty-eight of 43 hypoxemic patients in our series were not capable of full saturation with 100% oxygen, indicating the presence of A-V shunt or shunt-like effect. Fifteen of these patients were capable of full saturation when breathing 100% oxygen.

Cardiac output is usually decreased, end-diastolic pressure in the right ventricle and the A-V oxygen difference are increased. All of these physiologic findings are characteristic of congestive heart failure. When the mean pulmonary artery pressure was greater than 30 mm of Hg (normal, 20 mm of Hg) in our patients, hemodynamic right heart failure was usually present despite minimal clinical signs.

When the clinical suspicion of PED was raised, the two procedures most rewarding for diagnosis were the lung scans and pulmonary arteriograms. As their diagnostic utilization is increased, fewer and fewer misdiagnoses such as "viral pneumonia" will be made. The other laboratory studies may aid in the clinical suspicion of PED, but scans and especially arteriograms are necessary for specific diagnosis.

Because of the high morbidity and mortality, pulmonary embolectomy is rarely indicated and vigorous medical therapy with heparin at the present is generally more favored. The mechanisms for the effectiveness of heparin may be its antiserotonin effect (by preventing serotonin's release from platelets which stick to the embolus) as well as its well established anti-thrombin effect.

Clinical trial of a new thrombolytic agent, urokinase, an enzyme naturally occurring in the kidney, has shown it to be a highly promising therapeutic agent. For best results it is given as an 8-hour infusion; preliminary studies (which include repeat scans and angiograms within 24 hours after the infusion) indicate significant clearing of pulmonary emboli in many instances. Since the body's naturally present plasminogen-plasmin lytic system also cleans emboli, it is necessary to rapidly restudy these patients to evaluate the accelerated effects of exogenous lytic therapy. Hemodynamic studies have also demonstrated improvement following urokinase therapy. Although none of 10 patients so treated have become completely normal by their repeat studies, seven of them have shown varying degrees of improvement. The degree of improvement correlated best with the freshness of the lung clot which seems logical since organized thrombi are not susceptible to lysis.

The development of these newer therapeutic agents again emphasizes the importance of early and accurate diagnosis.

> What are called observations are often but a mixture of imperfect observation and unwarranted assumption.
>
> *Sir James Mackenzie*

# Special Reports

## AMERICAN ACADEMY OF ALLERGY

### Boston, Mass., February, 1968 — Reported by C. Royer Donoho, M.D.

### IMMUNOSUPPRESSIVE THERAPY

**Robert Schwartz, M.D. — Boston, Mass.**

Azathioprine (Imuran) and 6-Mercaptopurine (6-MP) are two of the antimetabolites most commonly used to alter the immune mechanism. These two purine analogues are structurally similar. *Imuran*, which differs from the parent compound only by the attachment of a nitromethylimidazole moiety, is degraded *in vivo* to form 6-MP.

Investigation of the antimetabolite-induced inhibition of antibody synthesis has shown that an increase in a specific large blast cell follows treatment with 6-MP or azathioprine. The cytoplasm of these blast cells contains numerous aggregates of ribosomes, the parts of the cell which are involved in protein synthesis. Since these are the cells which give rise to the cells which produce IgG and IgM, and there is now a block in the generation of these daughter cells, delayed sensitivity reactions are responsive to 6-MP therapy. Production of IgG is much more inhibited by 6-MP than is that if IgM, and therefore IgM mediated disorders cannot be treated by immunosuppressive agents. Asthma is not improved by these drugs, due to their lack of effect on reagins.

The measurement of immunologic response is difficult. After a few treatment periods clinical improvement is evident, but gradually the immunologic process recovers, necessitating continued treatment. Although there is minimal reduction of existing specific immune titer there are strong peripheral anti-inflammatory effects. Established immunity is not altered by the antimetabolites.

### VIRUS-INDUCED CHANGES IN CELLS

**Robert J. Huebner, M.D. — Bethesda, Maryland**

After a virus has been introduced into a cell, it may act either as a passenger or as active participant in the life of the cell. Passengers, although not specifically active, can cause immunologic phenomena. Even placentally transferred virus particles can have later manifestations, including participation in active cell changes or immunologic phenomena.

Cellular DNA is affected by three groups of oncogenic viruses including the following: pox-viruses, papova viruses, and adenoviruses. The tumors induced in hamsters by these DNA viruses are similar, and the messenger RNA produced by the tumor tissue is quite specific. The virus-induced changes in the cells act as antigens and are specifically detectable by CF and FA. In contrast to the DNA viruses, the Rous chicken sarcoma virus affects RNA in mice; but like its DNA counterpart, it possesses antigenic capability with the potential for antibody formation.

The immunological factors in virus-induced tumors are extremely important. The oncogenic viruses continuously change the cells they have infected; however, the host cells generally recognize the induced alterations and respond with immunologic cell destruction. The antigen-antibody reaction may be responsible for tumor formation. There are detectable antibodies that are able to neutralize tumor cells.

Investigations have been carried out on several human volunteers to whom SV 40 virus was mistakenly administered. Although antigenic factors have been detected in the subjects, no tumors have developed up to this time.

## THE ROLE OF ANTIGEN-ANTIBODY COMPLEXES AND COMPLEMENT IN INFLAMMATION

**Charles G. Cochrane, M. D. — LaJolla, California**

The incidence of autoimmune disease is increasing. Organ transplantation is also increasing, and frequently the transplanted organs develop their host's original disease. Shutting off the immune mechanism is extremely hazardous therefore there is an urgent need for the study of antigen-antibody reactions and the development of new approaches to related immunologic problems.

Investigation of antigen-antibody reactions has shown that mediating factors are humoral in origin, and that they initiate a chain-reaction which leads to end organ damage. A review of histologic slides of the Arthus phenomenon, acute glomerulonephritis, and the polyarteritis of serum sickness indicates that common mediators include: 1) mononuclear cells in blood vessel walls, 2) antigen which is demonstrated by the fluorescent antibody technique (FA), 3) complement which is demonstrable with complement fixation (CF), and 4) accumulation of polymorphonuclear cells in the area of the basement membrane. Electronmicroscopy shows basement membranes which are disrupted and endothelial cells which are pushed away by polymorphonuclear leukocytes. If leukocytes are depleted in experimental animals by specific antibodies or by administration of nitrogen mustard the antigen-antibody reaction causes no end organ damage.

The factor which brings leukocytes to the antigen-antibody reaction site is complement. When complement is depleted by a specific factor, leukocytes do not accumulate. This can be proven by using purified cobra venom, which inactivates complement. Evidence suggests that the pathogenesis of immunologic disease begins with an antigen-antibody reaction which coats cells and which attracts complement. The leukocytes then migrate to the coated cells.

The factors in the leukocytes which damage the basement membrane are cathepsins D and E plus basic proteins containing four electrophoretic bands. Band two includes the factor which induces histamine release from mast cells. Also involved are several unknown enzymes and "slow-reacting-substance." Hydrocortisone prevents accumulation of leukocytes and stabilizes the basement membrane.

Further research is needed to find a potent material capable of breaking the chain of events following antigen-antibody reactions.

## MECHANISMS OF CHRONIC INFLAMMATION

**Morris Ziff, M.D. — Dallas, Texas**

Analysis of the cells involved in the tuberculin reaction in the guinea pig reveals an initial predominance of polymorphonuclear cells. The percentage of lymphocytes is minimal during the initial response but increases with time, in contrast to the macrophage percentage which rapidly rises and falls. Autoradiographic technique reveals the following distribution of cells: 50% medium to large lymphocytes, 45% short-lived monocytes and histiocytes, and 5% small lymphocytes.

It appears that the cellular response in the tuberculin reaction is an inflammatory one involving large marrow-derived mononuclear cells rather than the reaction associated with immunologic memory which is one of small lymphocytes derived from lymph nodes. This cellular response is also characteristic of the turpentine skin reaction.

Evidence of an immune response in chronic inflammation has been revealed through the study of the synovial membranes in rheumatoid arthritis. Supporting evidence includes the following: 1) decreased complement, 2) production of IgG and IgM, 3) local synthesis of rheumatoid factor, and 4) production of local complement. The synovial membrane, through the production of IgG and IgM acts as a primitive lymphoid organ once inflammation has begun.

Chronic inflammation is composed of two parts: 1) the infiltration of short-lived mononuclear cells (which originate in the bone marrow and are stimulated by irritative processes) and 2) an immunologic reaction at the site (characterized by the production of antibodies as in rheumatoid arthritis). Immunosuppressive agents can affect the inflammatory process in the initial cellular response as well as in the later immunologic phenomena.

## CARDIOLOGY NOTES

### American College of Cardiology — San Francisco, Cal., February, 1968

Herbert M. Baganz, M.D.

The highlight of the 17th Annual Scientific Session was the presentation of Dr. Christian N. Barnard's paper entitled, *Was Human Cardiac Transplantation Premature?* At the end of his talk he asked a capacity audience of cardiologists, internists and surgeons, the audience most capable of passing judgment on him, whether he had done his work prematurely, and received a standing ovation of acceptance. Dr. Simon Dack, the session chairman, stated that in years to come what had been done will be remembered as one of the great achievements in surgery. Dr. Barnard, who performed the world's first homologous human heart transplant, defended himself against criticism that his clinical trials were premature. He reviewed some basic accepted principles of medical practice that a physician has an "obligation" to employ a new technique in a dying patient if there is a "reasonable chance of success" and if conventional therapy has failed. The task of the physician is not only to prolong life, but to relieve suffering. "It is not just how long a patient is going to live that should be the doctor's concern — but how is he going to live." He argued that he fulfilled these principles well, that both of the men to whom he and his colleagues had given transplanted hearts were in desperate straits; while he did not say death was imminent, they were suffering from general heart failure and were in a painful and virtually helpless condition.

"Before we can call the heart transplant procedure premature," Dr. Barnard declared, "we must answer three questions: (1) Is it necessary and will it be of value once perfected? (2) Can we perform it on human beings with a reasonable chance of success? (3) Are we capable of detecting complications peculiar to the technique?" The answer to all three questions must be in the affirmative. Dr. Barnard said that the "predictable complications" of heart surgery — failure, acidosis, and electrolyte problems — can be managed by a skilled, sophisticated, and experienced heart surgeon who confronts the hazard of such problems fairly regularly. He and his team amply demonstrate their ability with no postoperative complications as a result of the procedure, with no excess of postoperative bleeding and a zero mortality due to the technique in their hands. Dr. Barnard stated "my conscience is clear," believing he has a method of treating patients and, as a doctor, was morally obligated to try it.

The first patient, Louis Washkansky, died on the 18th day of Klebsiella infection. Pathologic specimens showed no evidence of rejection.

The anatomical surgical technique around the superior vena cava was varied slightly with the second heart transplanation done on Dr. Philip Blaiberg, age 54, a retired Capetown dentist, who still continues to do well. Dr. Blaiberg's two episodes of rejection were on the ninth day with increasing heart size with tamponade, a rise in temperature, a slightly abnormal sedimentation rate, and a drop in ECG voltage. The enzyme tests showed abnormal levels of SGOT and LDH. No special measures were taken and the signs reversed themselves spontaneously. Twenty-six days after operation there were again signs that the immunological system might be rejecting his new heart; drugs were then administered to suppress the immunity system. Dr. Blaiberg's heart now beats faster when he is active and slows down when he lies prone, showing response to hormonal control even though the nerve connections have been severed.

Dr. Barnard predicted the future use of animal hearts, especially the readily available pig heart which has an anatomy and metabolism close to the human.

Dr. Barnard noted that, aside from myocardial revascularization or temporary heart assist devices in selected patients, we have been able to do nothing in diseases of the myocardium, and these make up the majority of heart disorders. Dr. Michael E. DeBakey emphasized the value of the artificial heart and assisted circulation in treatment of myocardial failure, thereby reducing the burden on the heart for a sufficient number of days to allow improved function. The time allowable for use of the external pump without difficulties has increased with experience and with the use of a new dacron velour surface for blood-pump interface problems.

The increased area of cloth cover over metallic areas of prosthetic valves has significantly lowered mortality with thromboembolism. Since January 1966, Dr. Albert Starr of Portland, Oregon, has decreased embolism with the new valves in mitral replacements from 61%to 7%, and in aortic replacements from 29% to 9%; the last 27 cases operated upon had a mortality of only 4%. The experience of Dr. Dwight Harken of Boston with the discoid mitral valvular replacement with an increased area of covered metallic portion has been a decrease of embolism from the valve and is now safer than anticoagulation (viz. 1 case of embolization in 152 patient-months).

Ball variance in prosthetic valves is currently at 15% and diagnosis is now a significant problem with 12,000 patients alive with the model 1000 aortic prosthesis.

Coronary care unit mode of patient care was reviewed by Dr. Bernard Lown of Boston. The mortality of hospitalized patients with myocardial infarction of 30-35% includes deaths that are sudden and unpredictable. Coronary care units have made a significant contribution in reduction of mortality. He listed four criteria for coronary care: segregation in the hospital; surveillance constantly by monitoring; well-trained nursing staff with a mandate for therapy; and unified therapy policy and techniques of therapy. Electrical heart problems and prevention of ventricular fibrillation include: control of trivial arrhythmias; vigorous therapy for insipid cardiac failure; and therapy to accelerate bradycardias. The incidence of ventricular fibrillation in Dr. Lown's program is now 0.6% in 500 cases compared to 11% in areas without such coronary care. Dr. Arthur Setzer of San Francisco warns against overenthusiastic and poorly planned units — good coronary care units have decreased the mortality with myocardial infarction to 7%. The cardiogenic shock statistics give a "built in" control value for validity of reservable types of therapy from coronary care units.

Cardiogenic shock is noted to be associated with significant peripheral vasoconstriction and a reduction of this vasoconstrictive response with vasodilators is correlated with increased survival according to Dr. Richard C. Lillehei of Minneapolis. In his experience methylprednisolone is an effective vasodilator with therapy of a single massive dose of 30 mg/kg.

An interesting observation of significance in a series of premenopausal women with myocardial ischemia and necrosis has been made by Dr. Robert Elliot of Gainesville, Florida. These women have none of the etiological parameters of coronary artery disease and are without arterial obstruction on arteriography but have angina and have positive Master exercise tests. In 3 of 15 women in the series who developed myocardial infarction, no small artery disease was evident. They have an anomalous hemoglobin — oxygen dissociation curve with a loss of the usual "S" shaped dissociation curve. The subendocardium is particularly sensitive to decreased partial pressure of oxygen, especially the left ventricle. Insufficient oxygen release by hemoglobin seems to be the cause of the tissue changes. The nature of the hemoglobin abnormality cannot as yet be explained.

An analysis of 368 pacemaker implantations by Drs. Leonard S. Driefus and Dryden P. Morse of Philadelphia indicates an attrition rate of patients with fixed rate pacemakers at 5-10% higher than with demand pacemakers. Demand pacemakers with variable rate control are currently the most desirable type.

Continued on Page 166

# THE 1967 CHANGES IN SOCIAL SECURITY

• In the first year of operation, the recent changes in the social security system will pay $3.7 billion more (16 percent more) than the old law. What follows, highlights only changes in a program becoming increasingly significant to more and more people.

Matthew C. Trocheck

The Social Security Amendments of 1967, which President Johnson signed into law early this year, provided the biggest single increase in total cash benefits in the 32-year history of the program.

The average monthly benefit for a retired worker (man or woman) went up from $86 to $98, and the ultimate maximum benefit for a retired or disabled worker was increased from $168 to $218. The minimum monthly benefit rose from $44 to $55.

The largest increase that anyone earning less than $6,600 a year will be asked to pay as a result of the new legislation is $1.38 a month — and that is 20 years away. For those earning more than $6,600, the ultimate increase in contributions can be as high as $7.27 a month. But these higher contributions will also yield significantly more in benefits.

Let us see how these changes will affect the benefits of several imaginary but not unusual people and their families.

"Elizabeth Schmidt," now 50 years old, earns $7,800 a year. If she continues earning at this rate, she will get a benefit of $188.80 when she reaches 65 — 21.8 percent higher than she would have received under the old law.

Suppose "Margaret Dickinson" who is the chief support of her family were to die. Before 1968, there were some cases in which benefits could not be paid to dependents or survivors of a woman worker unless she had worked under social security for 1½ years of the last three years.

"Joan O'Donnell" hadn't worked since the birth of her first child four years ago. Joan was killed in an auto wreck last year. Her 4-year-old daughter and her 1-year-old son could have qualified for monthly benefits under the old law only if she had actually been providing half their support or if she had been working. These requirements were changed by the 1967 amendments. The O'Donnell children and some 175,000 other children become eligible for benefits in March.

### Payments to Disabled Widows at Age 50

"Josephine Painter," 52, is one of approximately 65,000 widows who are eligible for benefits because social security now makes payments to widows 50 or older who are disabled, and whose husbands were insured under the law at death. Payments under this new provision of the law began in March. A widow is considered disabled if she has a physical or mental impairment that would ordinarily be severe enough to keep a person from performing any gainful work, and her illness has lasted (or is expected to last) a year or more.

A disabled widower also can become eligible for benefits at 50 if at the time of his wife's death she had been furnishing half of his support.

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Mr. Trocheck is Field Representative, Department of Health, Education and Welfare, Social Security Administration, Wilmington, Delaware.

### More Young Disabled Workers Qualify for Benefits

"Mary Carson," a 25-year-old legal secretary, lost her sight as a result of an accident. She began working when she was 22 years old. To be eligible for disability benefits under the old law, Mary needed five years of work covered by social security in the ten years before becoming disabled. Under the new law, Mary needs only two years of work credits to qualify for benefits; her three years were enough. She began receiving monthly disability benefits of $140 in March, and she will continue to receive these benefits as long as she is disabled and unable to work.

Today, if a person becomes disabled between 24 and 31 years of age, he needs work credits for only half the time between age 21 and the time he became unable to work. If he became disabled between ages 21 and 24, he will need only 1½ years of work credits. There are 100,000 other people — both disabled workers and their dependents — who, like Mary, will receive benefits this year because of the new law.

### Servicemen and Their Families Get More Protection

Under the old law, only military base pay was counted toward social security benefits for servicemen and their families. Starting January, 1968, an additional $100 is being counted for each month in which the serviceman receives active duty pay. No additional social security tax contributions are deducted from their pay for these credits.

### Retirement Test Liberalized

Because of the amendments to the law, additional benefits of about $175 million will be paid in 1968 to beneficiaries who continue to work after becoming entitled to social security monthly cash benefits.

Here is how it works. Starting this year, the new law raised from $1,500 to $1,680 the amount of total earnings a social security beneficiary may have in a year without any benefits being withheld. (The $1,500 amount still applies for taxable year, 1967).

If you earn no more than $1,680 in 1968, no benefits will be withheld. If your total earnings exceed $1,680, $1 may be withheld from your benefits for each $2 earned between $1,680 and $2,880; $1 in benefits may be withheld for each $1 earned above $2,880.

Regardless of the total amount you earn in a year, no benefits will be withheld for any month in which you neither earn over $140 in wages nor perform substantial services as a self-employed person.

As in the past, no benefits will be withheld because of work for any month in which you are age 72 or older regardless of how much you earn in the year.

More detailed information about any of the 1967 amendments or help with any social security matter can be obtained from your local social security office.

### Medicare Changes in 1967

On July 1, 1966, a program designed to help pay for the best health care available for older Americans became a reality.

In the first year and a half of its existence, medicare covered 7.6 million inpatient hospital admissions, about 400,000 extended care facility admissions, and 350,000 home health care cases. Hospital insurance benefit payments amounted to about $4.3 billion.

About 28 million medical bills were paid under the medical insurance part of medicare, amounting to almost $1.3 billion in benefit payments. Most of these bills were for physicians' services.

The 1967 amendments added valuable new benefits to both the hospital insurance and medical insurance parts of medicare.

### Changes in Payment Method

One of the most important changes in the law makes it easier to claim medicare benefits for doctor bills and other medical services.

There are two ways to collect medical insurance benefits under medicare. One is for the doctor (or other supplier of services) to collect the medicare payment directly from medicare. If he accepts this "assignment" of the bill, he agrees to charge no more for the services than the reasonable charge as determined by the insurance organization which pays medicare claims.

The other way is for the patient to apply for the payment. Under the old law, if a doctor did not want to accept assignment of the medicare benefit, the patient had to pay him before he could apply for the medicare payment. But now, the patient can apply even if the bill has not yet been paid. All he needs to do now is get an itemized bill (paid or unpaid) and send it in with his request for payment. If the doctor's office will fill our Part II of the request for payment for the patient, it will serve as an itemized bill.

### More Hospital Benefit Days

At the beginning of this year, a "lifetime reserve" of 60 additional benefit days was added to the hospital insurance plan, which already covers up to 90 days for each "spell of illness." Unlike the 90 days, which are renewed at the end of a spell of illness, the "lifetime reserve" is not replaced after it is used. The added lifetime reserve can now be of help if all of the 90 days benefit was used up in one spell of illness. This lifetime reserve can be drawn on for up to 60 additional days. During these additional days, hospital insurance pays all but $20 a day of covered hospital expenses.

### Some Other Changes in Medicare

Here is a brief summary of other changes in the medicare law:

- Full reasonable charges for laboratory, x-ray and other radiology services by a physician will be paid to hospital inpatients beginning April 1, 1968. Previously, medicare paid 80 percent of the reasonable charges. (The services furnished by hospital technicians and other related hospital costs will be covered by hospital insurance.)

- If a patient in a hospital or an extended care facility is not eligible for hospital insurance benefits, his medical insurance can cover some services, beginning April 1, 1968, which could not be covered by either part of medicare under the old law.

- People who become 65 in 1968 or later and are not eligible for cash benefits under social security or railroad retirement, need only ¾ of a year of work covered by social security to qualify for hospital insurance.

- Treatments in hospitals that do not take part in medicare can now be paid for by medicare if the hospital meets certain requirements.

- Certain medical services which a podiatrist is licensed to perform are covered by the new law. Routine foot care and treatment of flat or partial dislocation are not covered in any case.

- Medical insurance now helps pay for either rental or purchase of medically necessary equipment such as wheelchairs, hospital beds, etc.

- Persons can now enroll for medical insurance during the first three months of any year and may drop their insurance whenever they wish.

### For More Information

More detailed information about any of the 1967 amendments or help with any social security matter can be obtained from your local social security office.

### PAMPHLETS AVAILABLE

The following pamphlets are available from your local Social Security office: Recent Improvements in Medicare; Health Insurance for People 65 or Older; Recent Improvements in Social Security Disability Insurance Benefits; Recent Improvements in Your Social Security.

# President's Page

## TO BE INVOLVED

As the year progresses and I became more cognizant of and familiar with the activities and problems of the Medical Society of Delaware, I ponder upon the number of physicians being satisfied with the knowledge that they have the backing and prestige of the Society when they need it, yet accepting this as their due without being willing to become involved.

Today we hear much about "becoming involved." It is necessary to be *in the mainstream*, to be *with it*, to be *hip*. Yet there are so many crying needs to be met and so many demands upon our time, it is not difficult, particularly for a physician, to have a pat answer for any and all requests for participation. "I'm too busy. I can't allow myself to get involved in anything else." Or "I'm not a member of the clique. Why should I try to do anything for the Society? They don't listen to me."

All organizations, ranging from social, civic, and church groups through hundreds of trade, business, and professional groups, find nonparticipation by the general membership to be a universal, insoluble problem. Sometimes one wonders how the Society is managing to celebrate its 179th anniversary this year. There must have been many times when the small nucleus of active, dedicated officers despaired of finding successors to carry on in the name of the Society. Fortunately there have always been those willing to give of their time, experience and wisdom to further the goals and prestige of our profession.

Active members must be found and cultivated to assume leadership. Doctors with organizational ability and concern for all aspects of medicine, and admittedly with an already overloaded schedule, must join *the clique.*

Today state societies must place increased emphasis on the planning, organization, and distribution of health facilities, services, and manpower as they are prime responsibilities of organized medicine. There is an opportunity and a need for new faces if medicine is to have a voice in shaping the future of health care in this country.

Daniel J. Preston

# Editorials

## THE INADVERTENT DISCOVERY OF HYPERCALCEMIA

We have always valued the complete history and the complete physical examination. Now we have to conjure with the complete laboratory examination provided to us by the routine use of auto-analysers. Since we have not yet settled what to do with the rectal polyp or thyroid nodule which we discover by being thorough, it is unlikely that we will soon decide what to do with asymptomatic hypercalcemia. Note, however, the difference between the physical examination and the history; by definition, if an item is a complaint, it is a problem.

There is a difference between asymptomatic hypercalcemia and *unsuspected* hypercalcemia. The auto-analyser will frequently earn its keep by putting us on the trail of sarcoidosis, carcinoma of the lung, multiple myeloma, and familial enzymatic disorders, sooner than we otherwise would arrive at these diagnoses. Therefore, it is a practical question which tests are appropriate when hypercalcemia turns up. A complete history, physical, blood count, urinalysis and chest x-ray (ie, the other routine tests) are indicated. A serum electrophoresis will be a good thing to get, as well as serum phosphorus, kidney studies, and x-rays of the breasts, hands, feet, skull and pelvis. A urine calcium is pretty worthless; any cause of hypercalcemia will lead to hypercalciuria. Once in a while, all these studies are negative. Since the increasingly common cause of this problem is occult carcinoma, these people must be carefully followed for six months.

Not every case of *asymptomatic* hypercalcemia is due to parathyroid adenoma, although those who are in perfect health will mostly be found to have an adenoma.

It has been clear for some time that unrecognized parathyroid adenomas are not rare; the Mayo Clinic reported fifty cases discovered by accident in a few years. A parathyroid adenoma starts small and grows slowly. Symptomatic patients tend to be elderly. Since the surgery is more difficult when the tumor is small, it is safe to advise the best course for borderline elevations of calcium: *Wait.*

And when the calcium level is uneqivocal (say 13.5 mg%)? Such a question is a statistical one, and we do not have the necessary statistics. It surely is not worth a 0.1% operation mortality to prevent 0.1% incidence of kidney stones, or even fractured bones. (Remember, the patient was totally asymptomatic at the time the calcium was discovered to be high. The issue is whether to wait until the first symptom does appear.)

The incidence of malignancy in parathyroid tumors is widely quoted to be 2%. It is clearly worth a neck exploration to save the lives of 2% of the patients. But, such a decision depends on two unlikely assumptions:

1. Every patient who develops a malignancy will die of it unless he is operated upon at the earliest possible moment.

2. Every patient who is operated upon at the earliest possible moment will be cured.

Since the true statistics are unknown (but surely neither 100% nor 0%) this decision will continue to be a matter of individual judgment for a long time. Probably we will operate upon persons whose life expectancy is long and whose operative risk is low. We will probably hesitate when the patients are older and sicker.

George Fisher, M.D.

## EDUCATION FOR SEX

Mary S. Calderone, M.D., is a grandmother. She is gray-haired and, except that she is a little bit too thin, could easily be called "dowager-like" in appearance.

She is the founder and guiding light of *SIECUS*, the Sex Information Education Council of the United States, about which we have heard so much in recent years. The purposes of *SIECUS* are: to establish man's sexuality as a health entity; to identify the special characteristics that distinguish it from, yet relate it to, human reproduction; to dignify it by openness of approach, study and scientific research designed to lead toward understanding and its freedom from exploitation; to give leadership to professionals and to society, to the end that human beings may be aided toward the responsible use of the sexual faculty and toward assimilation of sex into their individual life pattern as a creative and recreative force.

Dr. Calderone spoke recently in Delaware. The following are selections from her remarks at the Tower Hill School PTA.

- The sex education of a child begins at birth because the process of sexualization begins then.

- Sex education is not identical with reproduction education. Reproduction is a separate process, the end result of one sexual act. In females, a different set of active-passive organs is used for reproduction than for sex. The two separate processes are linked by only one act.

- Sex education is not intercourse education. Intercourse is but one aspect of sex even if a central aspect.

- Sexuality has an important role outside the sexual act in the ordinary give and take of everyday life. We do not ever meet each other as non-sexual people. This sexuality has nothing to do with eroticism. We tend to think of sex as something that we do instead of something that we are.

- Morality has too often been presented as something that you don't do instead of in terms of something positive that you do do.

- Marriage manuals are out of date because they depend on tricks and techniques.

- Human beings are not born with sexual natures ready-made and fixed. Male sexual response develops spontaneously and automatically early in life. Almost 100% of all men have had orgasm by the end of puberty. Female sexual response is quite different. A large proportion of the female response is not spontaneous and is learned later in life than is the male. Peak sexual capacity in males is reached in the teens. The female peak may not occur until the forties or later.

- Castration of women does not change sexual response already established.

- Masturbation is an expected part of sexual development.

- Our role is to provide our children with the best possible bases on which to make their sexual decisions. They will make mistakes but they make them now out of ignorance.

- Education for sexuality should be a function of many agencies: home, church, and school.

- We are not in a sexual revolution; the rate of "sleeping around" in colleges has not much changed in the past 25 years . . . The revolt is actually one against ignorance, hypocrisy, and false values . . . The significance of a revolution is not in what it is revolting against but what it is revolting towards.

- Better sexuality education will close the gap between the generations and decrease the need to delve so deeply into immediate erotic experience.

- It is as yet unknown if the marked difference in female sex response is biologic or cultural.

- "I never use the word love in my discussions because the word love is used as a pelvic rationalization," said Dr. Calderone.

*SIECUS* address is 1855 Broadway, New City, N.Y. 10023. They publish a newsletter.

*B.Z.P.*

# Delaware Academy of General Practice

## BOARD URGES MEMBERS TO HOLD DOWN MEDICAL COSTS

The board of directors of the American Academy of General Practice has gone on record urging the Academy's more than 30,000 members to take definite steps to hold down the cost of medical care.

The board, in a meeting held in Kansas City, Missouri, on April 19, recommended these steps to hold down costs:

- Order ancillary diagnostic (laboratory) tests only when necessary for optimum patent care
- Hospitalize patients only when necessary for optimum patient care
- Raise fees only when necessitated by increasing costs

The action was by resolution prepared by the group's Committee on Medical Economics.

George E. Burket, Jr., M.D., President, noted later that a fourth step should be added. He suggested that Academy members should also attempt to help patients obtain quality drugs at the lowest possible price. He emphasized that this was not an endorsement of wholesale prescriptions of generic drugs because that is a decision which the individual doctor must make. His main point was that physicians should do everything in their power to help patients get the best drugs at the lowest price.

The board resolution stated that none of the cost-holding recommendations should imply control or infringement on sound medical judgment in total patient care. It also listed some of the reasons for increasing medical costs, including increased taxes, higher rent, increased manpower costs (through higher salaries, better fringe benefits and greater competition for qualified paramedical personnel), higher cost of supplies, and increased cost of doctors' retirement programs.

### MAKE A CALENDAR NOTE

The emphasis will be on education at the Academy's Twentieth Annual Scientific Assembly, September 16-19, in Las Vegas. The evolving "total patient" approach to medical care will be reflected in an outstanding program featuring 18 scientific speakers, seven closed-circuit television laboratories, "consultant's corners" for on-the-spot private consultation with the experts, six full-length programmed-instruction courses, and a slate of 46 clinical seminars.

Academy members this year will have a chance to earn more hours of approved postgraduate credit than ever before. Attendance at the afternoon lecture can be augmented by attending the clinical seminar (three hours per seminar) or closed circuit television programs (one hour for each program). Each programmed-instruction course provides one hour of approved credit.

## ANNUAL BUDGET FOR MEDICINE

From perhaps a quarter of a million people engaged primarily in medical care in 1900, an estimated three to four million people are now so employed. An annual budget for medicine of $5 to $6 billion has expanded to somewhere between $40 and $50 billion. The time may not be far distant when health care will represent the leading expenditure in the U.S. (Morris Fishbein, Medical World News. Dec. 22, 1967.)

# In Brief

### Personal Glimpses

William H. Duncan, M.D., and Richard R. Griffith, Director of the Association of Delaware Hospitals, were speakers at the conference for adequate out-patient and home care facilities in Delaware held at Smyrna. Harry Taylor, M.D., Scheldon Schweidel, Coordinator of Department Services for the State Department of Mental Health, and M. H. Mires, M.D., were panel members . . . Joyce Z. Pearson, M.D., spoke recently at an open meeting of Alcoholics Anonymous . . . Henri F. Wendel, M.D., was appointed to the Council on Environmental and Public Health of the AMA . . . Dr. Wendel is also a member of the Commission on Environmental Medicine of the AAGP . . . William T. Reardon, M.D., spoke before the Psychiatric Department of the University of San Juan Medical School, Puerto Rico, on the subject of *Group Psychotherapy;* on April 17, Dr. Reardon discussed the *Value of Relaxation Therapy in Education* at the University of Delaware.

### Dr. Shands Honored

Alfred R. Shands, Jr., M.D., Medical Director of the Alfred I. duPont Institute was honored May 7 at an Easter Seal Society dinner. Dr. Shands has headed the Nemours Foundation's Institute at Rockland since it began operations in 1940; is chairman of the House of Delegates of the Easter Seal Society; and played a leading role along with George Ehinger of Dover in founding the society 20 years ago.

### In the News

Wilmington welcomes back Albert L. Ingram, Jr., M.D., as Delaware's State Health Commissioner as of June 1. Dr. Ingram left Delaware to head medical services at Pennsylvania State University. Dr. Ingram attended the Psychiatric Society's last meeting when officers elected were headed by Nicholas P. Bash, M.D., as President, and Lidia Bales, M.D., as President-elect.

Andrew M. Gehret, M.D., conferred the Commission of 'Kentucky Colonel' on Governor Charles L. Terry, Jr., on behalf of the Governor of Kentucky, Louis J. Nunn. Dr. Gehret was honored with the same Commission being presented to him.

David F. Fitchett, M.D., has been appointed a first-year resident in surgery at the Wilmington Medical Center. Dr. Fitchett, son of Dr. and Mrs. Laurence L. Fitchett of Milford, Del., is a returning veteran of the Vietnamese war. Dr. Fitchett was winner of a Thomas McCabe Memorial Scholarship, available to outstanding Delmarva Peninsula high school graduates to attend Swarthmore College. He was graduated from Swarthmore in 1961 and received his M.D. degree from Jefferson Medical College in 1965. He expects to begin his residency at the Medical Center on July 1.

An Outpatient Clinic for Alcoholics will open within the next two months at the Wilmington Medical Center. Medical director will be Joyce Z. Pearson, M.D., a member of the AAGP. Treatment will include group and individual therapy, consultation with the family and medication that is deemed necessary. The clinic will be open five days a week, with evening sessions.

### Speakers On "Ask the Doctor"

Speakers for June, 1968, on the Tuesday Radio program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: June 4, Ted Chronister, M.D., *Epilepsy, Learning Disorders;* June 11, Douglas MacKelcan, M.D., *Dizziness;* June 18, Mark Cohen, M.D., *Heart Failure;* June 25, Forrest Hawkins, M.D., *Childhood Immunization.*

### Medical Seminars of the Medical Society

The last of these seminars will be held at the Nanticoke Memorial Hospital, Seaford, from noon to 1 p.m., on the second and third Thursdays in June.

June 13: John B. K. Smith, M.D., *Mental Health in the State of Delaware.* An up-to-the-minute and current outline of mental health policies and practices, along with future plans of mental health in the State of Delaware.

June 20: William H. Duncan, M.D., *Design of Next Year's Course.* A frank and open discussion and critique of the 1967-1968 program with suggestions for improving and expanding the program for 1968-1969.

### AMA Letter

A letter from Dr. Milford O. Rouse, president of the AMA has been received describing his enthusiastic reaction to the recent national AMPAC meeting in Washington, D.C.

Dr. Rouse says, "*The need for individual participation in practical bipartisan activity is now more vital than ever . PAC programs and PAC membership offer the physician the chance to discharge this responsibility and to be a better citizen in his own community. This year presents unusual challenges for which we must be prepared. . . . PAC support will be a substantial contribution to this preparation.*"

### Those Exemptions

Legislation has been endorsed to increase the tax exemptions to $1,200 on Federal Income Taxes. Since 1950, the cost of living has skyrocketed but the $600 federal income tax exemptions have remained unchanged. The Bill would increase tax exemptions to $1,200. The legislation by Representative Thomas Meskill of Connecticut, H.R. 862, is favored by 78 percent of the nation's independent business owners and opposed by 19 percent, with 3 percent undecided. In the State breakdown figures, Delaware stands thus: 65% in favor; 33% against; and 2% undecided.

### The Month in Washington

The AMA has recommended to Congress that an extension of the regional medical program be for only three years. Bland W. Cannon, M.D., member of the Council on Medical Education, said, "There is some concern that the proliferation of federal health programs contributes to the rise in health care costs. We are pleased that HR 15758 provides for an evaluation of the program and would suggest that it begin July 1, 1968, rather than July 1, 1969. We also suggest that the subcommittee consider amending Section 102 to provide that the evaluation be made by a non-government agency . . . "

The AMA and the Association of American Medical Colleges announced a joint policy designed to increase the number of medical students. Immediate steps are: 1) Increase the enrollment of existing medical schools, and 2) Foster curricular innovations and other changes in the educational programs which could shorten the time required for a medical education and minimize the costs.

The federal government has established a new agency called the National Center for Health Services Research and Development. Committees are: 1) The Medical Assistance Advisory Council that will advise the secretary of Health, Education and Welfare on matters relating to federal-state medical aid programs., 2) A panel to give the social security commissioner advice on experiments to find new methods of reimbursing hospitals and physicians for health care and other federal health programs.

Dr. Ruhe, Director of AMA's Division of Medical Education noted that Federal aid to medical schools under the proposed Health Manpower Act of 1968 would not become available before 1970. Therefore, efforts must be made to secure the essential immediate increase in financial support through increased appropriations under existing law.

Governor Nelson Rockefeller of New York and two other witnesses at a Senate subcommittee hearing supported national compulsory health insurance as a solution of the problem of rising health care costs.

Manufacturers of oral contraceptives are being asked by the Food and Drug Administration to revise uniform labeling for the products to reflect findings from research in Great Britain that there is an association between the use of oral contraceptives and thromboembolic diseases. The proposed new FDA labeling would reflect the findings of the British studies and would be aimed at prescribing physicians.

**Traveling to Europe?**

*Doctor's Circle*, an organization founded by Kurt Unger, M.D., an internist, can arrange to put you in touch with local physicians in many Western European countries. Write to him (no fee) at 33-15 34th Ave., Long Island City, Queens, N.Y. 11106.

**American College of Physicians**

The ACP will present *Basic Principles in Internal Medicine,* June 10-14, 1968, at the auditorium, College of Pharmacy, University of Iowa, Iowa City, Iowa.

The ACP presents *Intensive Care Units in General Hospitals* on June 17-19, 1968, at the University of Colorado Medical Center, Colorado General Hospital Auditorium, 4200 E. 9th Avenue, Denver.

On June 19-22, 1968, the ACP will present *Infectious Diseases: Mechanisms and Manifestations* at the University of Maryland School of Medicine, 29 South Green St., Baltimore.

Fees are: Members, $60; Non-members, $100. For further information, write: Edward C. Rosenow, Jr., M.D., Exec Dir., ACP. 4200 Pine St., Phila., Pa. 19104.

**Postgraduate Programs**

The Division of Maternal and Child Health of the University of California School of Public Health, at Berkeley, announces postgraduate programs for pediatricians, obstetricians, and other physicians interested in receiving training in the field of maternal and child health. These programs all lead to the degree of Master of Public Health. Tax-exempt fellowship support is available. Categories are: Maternal and Child Health; Family Planning; School Health; The Multiply Handicapped and Mentally Retarded Child; Career Development Programs. Applications are now being accepted for the group entering in July or September, 1969. For information write: Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

**National Cancer Conference**

The University of Wisconsin Medical School, Division of Clinical Oncology, will hold its eighth annual National Cancer Conference, *Cancer Chemotherapy '68,* August 22-24, at Park Motor Inn, Madison, and is open to all U.S. physicians. The division of clinical oncology is internationally known for its work on experimental cancer drugs. The University Hospitals serve as a central clearing house for new drugs and directing 24 other medical centers in this work under a grant from the National Cancer Institute.

# Letters to the Editor

To the Editor:

A few months ago, an appeal was made through this journal for medical and surgical supplies and pharmaceutical samples for the recently organized International Health Committee of the Woman's Auxiliary to the Medical Society of Delaware. I thought a report of the tremendous and most gratifying response would be of interest to all who have helped in donating, collecting and packing these materials.

At the present time, an excess of 3,000 pounds of pharmaceuticals has been collected. This we expected. However, our most surprising response has been the donation of office equipment; examining chairs, tables, surgical instruments, suture materials, laboratory and physical therapy equipment, sterilizers, traction aids, crutches, diagnostic equipment from the small head mirror to a complete portable x-ray machine, fluoroscopes, anesthesia aids, dental equipment, lab coats, nurses' uniforms, and much much more. Yet, this is just one phase of our program.

In addition, men's old shirts are being transformed into hospital "johnny coats," leper bandages are being knitted and old sheets are being ripped and rolled into bandages and dressings by auxiliary members and several troops of Boy Scouts and Girl Scouts.

Perhaps you would also be interested in knowing that first shipments have already reached Musoma, Tanzania and Ethiopia. Physical therapy equipment and leper dressings are en route to an African leprosarium, pharmaceuticals are being sorted in New York for distribution all over the medical mission world and other equipment is earmarked for collection by an Interfaith unit to fill the most urgent needs in the far away medical outposts.

If you have offered materials and we have not collected them, we ask your indulgence and patience. Offers of supplies at no time have waned, but we were not adequately prepared, nor did we anticipate this unexpected response to our requests.

I would like to share with you a small paragraph of a letter I have just received from Africa:

> *"We are so grateful for every bit of equipment and supplies you have collected. You can hardly imagine the moral boost your interest in our work has been to us working in these isolated and primitive situations. Please extend our appreciation to everyone concerned with your organization."*

I can hardly say more.

Kathleen E. Aikins, *Chairman*
*International Health Committee*

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## CARDIOLOGY NOTES

Continued from Page 155

Propranolol is effective in cardiac arrhythmias with a quindine-like effect and prolongs the refractory period at the A-V node, being additive to digitalis. This beta-receptor antagonist reduces sympathetic nervous system effects, decreasing tachycardia with exercise and decreasing oxygen needs. Dr. Henry I. Russek of Staten Island reported a synergism of propranolol with nitrates in therapy of angina pectoris using 5 mg isosorbide dinitrate and 40-80 mg of propranolol. Therapy relieved acute attacks and was effective in improving exercise tolerance without symptoms.

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## ERRATUM

Gremlins at the printer's (political affiliation unknown) deleted the last line (three words) of Russell Peterson's statement in the editorial *3000 Blood Tests in Minutes*, in our last issue. Mr. Peterson's actual words were: . . . *With the accelerating rate of change in the world around us, it becomes important to us all to keep in touch with what is going on and to participate in directing change the way we want it to do lest we become victims of misdirected change."*

# New Members

Milan Q. Felt, M.D., University of Louisville School of Medicine, '58, was born in Salt Lake City. Delaware license: 1967; Specialty: Neurosurgery; Office: 2401 Pennsylvania Avenue, Wilmington, Del. Dr. Felt is married and has four boys. He likes swimming and tennis and he plays the piano. He is also a licensed pilot.

Harold H. Orvis, M.D., Columbia University College of Physicians and Surgeons, '52, was born in Philadelphia. Delaware license: 1966; Specialty: Internal Medicine; Office: Atlas Chemical Industries, Inc. Dr. Orvis is married and has three children. He and his wife are leaders of the Boy Scouts and Girl Scouts. They have a country house in Westtown, Pennsylvania, where they grow and freeze most of their food.

James H. Taylor, M.D., Temple University School of Medicine, '57, was born in Chester, Pa. Delaware license: 1966: Specialty: Radiology; Office: Wilmington General Division, Wilmington Medical Center. Dr. Taylor is married and he and his wife enjoy sailing. He also dabbles in photography as a hobby.

John T. Hogan, M.D., was born in Norwich, England, and received his medical degree from the Royal College of Surgeons in Ireland, '58. He obtained his Delaware license in 1965. Specialty: Orthopedic Surgery; Office: Professional Building, Wilmington, Del. Dr. Hogan is married, has two small children and, as he put it, "Likes to keep the house in order." Carpentry, as a hobby, takes care of this and then, in addition, he likes to listen to Hi Fi and play golf.

Anthony J. DiMaio, M.D., Jefferson Medical College, '59, was born in Wilmington, Del. Delaware license: 1960; Specialty: General Practice; Office: 804 S. Chapel Street, Newark. Dr. DiMaio likes photography and swimming at the "Y." With their small son, the doctor and his wife like to spend most weekends at their cottage on the Elk River.

William A. Coolidge, M.D., Temple University Medical School, '58, is a Pennsylvanian by birth. Delaware license: 1959; Specialty; General Practice; Office: 1364 Marrows Road, Newark. Dr. Coolidge has seven children, ages from 1 to 12, which would seem to swallow up any hobbies that he might have in mind. But he *is* the team physician for the *Yellow Jacket Team*, Newark High School, and also spends a lot of time with the *Newark Little League baseball* group.

# The Physician and The Pharmacist

*A monthly feature of the Delaware Pharmaceutical Society*

### Cautious Use of Elavil

Seven patients experienced grand mal seisures while receiving Elavil (amitryptyline-MS&D) in recommended dosage. All but one patient had seizures only while taking the drug, and always within a few days of either commencing medication or changing to a higher dosage. The other patient did have a previous epileptic history, but had not experienced seizures for many years. Two patients (one with a strong epileptic family history) had EEG evidence of epileptogenic activity. A further two patients may have had slight brain damage possibly associated with a low convulsion threshold. Three patients had seizures after displaying other side effects (headache, agitation, etc.).

An epileptic seizure is a disturbing event both to the victim and to onlookers, and can be fatal, especially if the subject is unaware that he is subject to seizures. Therefore, the risk of convulsions in Elavil-treated patients must be seriously considered. The drug should be used with extreme caution in patients with a presumed low seizure threshold (brain damage, previous or present epilepsy, epileptic family history, or epileptogenic activity in the EEG).

Betts, T. A. et al., Dept. Psychiat., Univ. Birmingham, Birmingham, Eng.; Lancet 1:390, Feb. 24, 1968.

### Vinegar Held Useful Anti-Pseudomonas Agent

Vinegar, recommended by Hippocrates for the treatment of ulcers, has been successfully used to eliminate Pseudomonas aeruginosa from burns and superficial wounds, according to investigators here.

In a recent small trial of the remedy conducted by Dr. Ian Philips and his associates at Makerere University College Medical School, patients with a variety of infected skin lesions were treated. These included bedsores, lacerations, a Kaposi sarcoma, Buruli ulcer, diabetic ulcer, and burns.

Control patients had similar lesions but were untreated. Lesions were swabbed daily for seven days and growth was calculated (after overnight incubation) on a scale of none (0) to very heavy (5). In the treated group, mean scores fell from 4.1 on the first day to 0 (or 0.7) by the seventh. Scores in the control group remained at about 3 or 3.8 during the testing period.

The effect of the acid was quite specific, the Makerere team observed, and there was little evidence of activity against either gram positive or gram negative organisms — some of which, particularly Staphylococcus aureus and Proteus, "actually increased in quantity in many of the wounds." Despite this, the disappearance of P. aeruginosa coincided with clinical improvement and apparently facilitated skin grafting, the authors noted in *The Lancet, 7532:11.*

Prior to the test, all patients had been treated with antibiotics and had received topical disinfectants in efforts to control infections.

Antibiotic News; Volume 5, No. 3, March, 1968.

**pmc**
hygienic powder

*makes an effective douche solution for intimate feminine hygiene*

At all drug depts. in 4 oz. and 1 lb. jars

**Active Ingredients:** Menthol, Boric Acid, Eucalyptus Oil, Alum, Phenol, Oil of Peppermint, Thymol.

Delaware
Medical Journal

JUNE, 1968
VOLUME 40
NUMBER 6

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# COPPERHEAD BITES IN DELAWARE

## Results of a Survey and Suggested Treatment*

• **While snakebites are not very common in Delaware, when one occurs it presents a medical emergency with which some physicians have not had great experience. The authors trust the findings in this study will prove of interest.**

Henry M. Parrish, M.D.
William B. Neser, M.S.P.H.
Stanley L. Silberg, Ph.D.

Bites by venomous snakes are relatively uncommon in Delaware, but when a snakebite accident does happen it behooves a physician to know what venomous snakes are found in his state, how to diagnose snake venenation, and what constitutes our currently recommended therapy for snakebites.

Delaware has the third lowest annual incidence of venomous snakebites of states comprising the South Atlantic Region of the United States. The estimated annual incidence of venomous snakebites per 100,000 population is: North Carolina — 18.79; Georgia — 13.44; West Virginia — 11.29; South Carolina — 7.72; Florida — 7.07; Virginia — 5.47; Delaware — 1.79; Maryland — 1.35; and District of Columbia — 0.65.[1] There were no deaths from venomous snakes in Delaware during the 10 year period, 1950 through 1959.[2]

### Venomous Snakes

The northern copperhead *(Ancistrodon contortrix mokeson)* is the only venomous snake indigenous to Delaware. Some authorities believe that the timber rattlesnake *(Crotalus horridus horridus)* formerly was native to Delaware. However, Klauber[3] states that, "rattlesnakes have apparently been exterminated in the Del-Mar-Va Peninsula, if indeed they ever occurred there."

The copperhead is so named because of its coppery-red head. It is also commonly called the dryland moccasin, highland moccasin, chunkhead, pilot snake, poplar leaf snake, red oak snake, and white oak snake. The average adult copperhead is 60 to 90 cm (24-36 inches) long. It has a large, coppery-red head, a moderately thick body, reddish-brown hourglass markings on the sides of its body,

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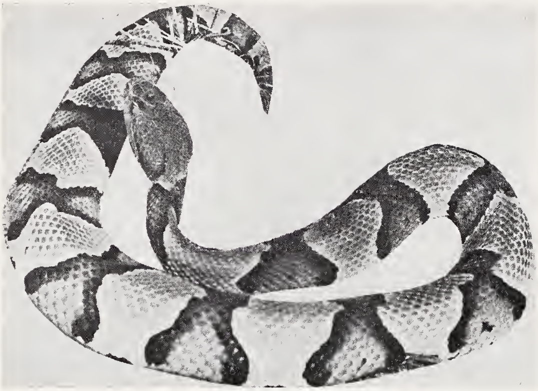
*From the Department of Community Health and Medical Practice, School of Medicine, University of Missouri, Columbia, Missouri 65201.



COPPERHEAD

and a tail ending in a point, without rattles (Figure 1). A young copperhead's tail may have a yellow tip. This terrestrial snake's favorite haunts include mountains, wooded hillsides, rock piles, rock quarries, and sawdust piles. It is not unusual for copperheads to live within city limits and near suburban housing developments. Mice, other rodents, birds, insects, and frogs constitute their major source of food. When disturbed or stepped on, this snake may strike with amazing speed. These venomous snakes are indigenous to 30 states in the eastern two thirds of the United States.

How can one distinguish a copperhead from a harmless snake? Copperheads are pit vipers. They are identified by a characteristic pit between the eye and the nostril on each side of the head, by elliptical pupils, and by two well-developed fangs which protrude from the maxilla when the mouth is opened. By turning the copperhead's belly upwards one may observe a single row of plates under the tail, except near the tip. Harmless snakes do not have facial pits, they have round pupils, and they have small teeth but no fangs. The underside of a harmless snake's belly shows a double row of subcaudal plates (Figure 2).

### Snakebite Survey

The data for this report were obtained from a national survey of venomous snakebites.[1] A questionnaire and letter were mailed to a group of Delaware hospitals listed in the American Hospital Association's Guide. We selected general hospitals; children's hospitals; college infirmaries; Army, Navy, Coast Guard, Public Health Service, Air Force, and Veterans Administration hospitals. Maternity, tuberculosis, and mental hospitals were omitted. A total of 11 Delaware hospitals comprise the study group. Each hospital was requested to report all in-patients admitted for snakebite during 1958 and 1959.

Most hospitals do not code and tabulate the diagnoses of emergency room and outpatient clinic visits. Since some snakebite victims are not admitted to the hospital as in-patients, it seemed essential to ask a sample of practicing physicians how many snakebite victims they treated on both an out-patient (office, home, emergency room, and so on) and on an in-patient basis. Previous surveys have shown that most people with venomous snakebites are treated by general practitioners, surgeons, internists, pediatricians, and orthopedic surgeons. A random sample of one third of all the Delaware physicians in these categories of practice who were listed in the American Medical Directory were sent questionnaires.

Death certificates for fatal snakebite cases were obtained from the Delaware State Board of Health.

### Results

This report is based on questionnaires returned by all 11 Delaware hospitals. It is supplemented by questionnaires returned by 42 (81 per cent) of 52 practicing physicians in the State. The Delaware State Board of Health reported that there were no snakebite deaths during 1958 and 1959.

Based on reports received by physicians and hospitals, we estimate that 8 people are treated for venomous snakebites annually in Delaware — an incidence of 1.79 per 100,000 population. Of the 8 bites per year, about one third of the patients are admitted to hospitals and the other two thirds are treated on on out-patient basis. The offending snake was listed as a copperhead in 62% of the accidents and as an unidentified venomous snake in 38%.

Of the victims, 6 were males and 2 were females. All of the victims were Causasians and 5 of them were children or youths less than 20 years of age. All of the bites were inflicted on the victims' extremities, 5 on the lower extremities and 3 on the upper extremities. The bite accidents happened from May through October, the time when snakes are most active and when people have a greater exposure from out-of-doors occupations and recreation.

The severity of venenation from copperhead bites may be determined by a modification of the classification of Wood et al.[4] Bites were classified as follows:

*Grade 0, No Venenation.* Fang or tooth marks, minimal pain, less than 1 inch of surrounding edema and erythema. No systemic involvement.

*Grade II, Minimal Venenation.* Fang or tooth marks, severe pain, 1 to 5 inches of surrounding edema and erythema in first 12 hours after bite. Systemic involvement usually not present.

*Grade II, Moderate Venenation.* Fang or tooth marks, severe pain, 6 to 12 inches of surrounding edema and erythema in first 12 hours after bite. Systemic involvement may be present — nausea, vomiting, giddiness, shock, or neurotoxic symptoms.

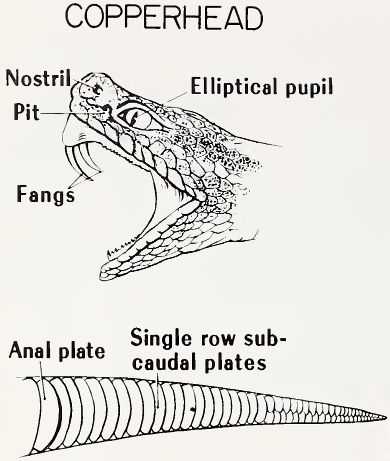
*Grade III, Severe Venenation.* Fang or tooth marks, severe pain, more than 12 inches of surrounding edema and erythema in first 12 hours after bite, systemic involvement usually present as in grade II.

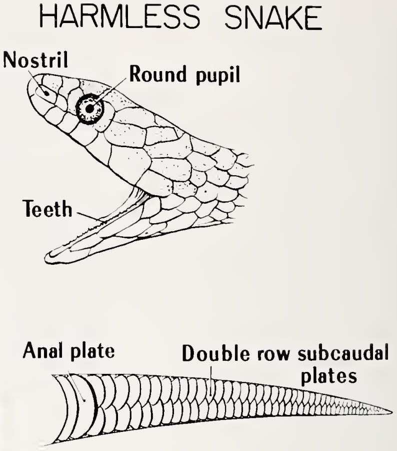
There were too few detailed case reports to classify Delaware copperhead bites. However, a national survey of copperhead bites showed that 20% are grade 0, 42% are grade I, 27% are grade II, and 11% are grade III.[5] It is important to recognize that not every bite by a venomous snake results in signs and symptoms of venom poisoning. Many bites by copperheads are not life-threatening (Grade 0 or Grade I). With adequate treatment, there should be few fatalities. However, severe copperhead bites that go untreated may result in death of the patient.

### Treatment

The currently recommended treatment for copperhead bites is as follows. A constricting band (tourniquet) should be applied lightly to the involved extremity several inches above the bite. The constricting band should be applied only tightly enough to occlude the superficial venous and lymphatic flow. It should not occlude the arterial circulation, and it should be released every 10 to 15 minutes for a minute or two. As edema resulting from venom poisoning spreads, the constricting band should be advanced to keep just ahead of the swelling. The purpose of the constricting band is to impede the spread of venom until incision and suction can be used to remove the venom mechanically or until polyvalent crotaline antivenin can be administered to neutralize the venom.

Incision and suction is effective in removing venom from experimental animals up to





about 120 minutes after the venom is injected. The sooner it is used, the larger the amount of venom that can be removed. Suction should be used for about one hour. Incisions, ¼ inch long and ⅛ to ¼ inch deep, are made into the subcutaneous tissues over the fang punctures.

The "3 A's" (antivenin, antibiotics, and antitetanus prophylaxis) are recommended, in addition to incision and suction, in treating all serious pit viper bites. Antivenin manufactured in this country is effective in neutralizing the venoms of all North American pit vipers. Since antivenin is produced from horse serum, the patient should receive a skin test before antivenin is given. Antivenin diluted in 500 ml of normal saline may be given intravenously.[6] Studies with radioisotopes have shown that antivenin accumulates at the site of the bite more rapidly after intravenous administration.[7] Although antivenin has been administered intravenously for several decades in other countries, this route of administration was not used frequently in the United States before 1960. Injection of antivenin into the local bite area is not a particularly effective way to administer antivenin. We have found the following amounts of antivenin useful in treating the various grades of venenation: grade 0 (no venenation) requires no antivenin; grade I (minimal venenation) may require 10 ml (one ampule) of antivenin; grade II (moderate venenation) requires 30 to 40 ml of antivenin; and grade III (severe venenation) requires 50 ml or more of antivenin. These amounts are recommended for both children and adults.

Since snakes' mouths and venoms may harbor pathogenic organisms, antibotics and tetanus toxoid or tetanus immune globulin should be given prophylactically. Gram-negative organisms predominate, hence a broad-spectrum antibiotic is indicated.

Corticosteriods and corticotropin (ACTH) do not affect the survival rate of animals poisoned with pit viper venoms. They probably should not be used during the first few days after venenation, although they may be beneficial later in treating serum sickness resulting from antivenin therapy. Antihistamines are contraindicated as they shorten the survival time of animals poisoned with pit viper venoms. Shock resulting from venom poisoning should be treated with infusions of blood, plasma, saline solution, and vasopressor drugs. Analgesics are needed to relieve pain. Recently there have been reports of excessive tissue necrosis and amputations associated with cold therapy such as packing an extremity in ice or using ethyl chloride.[7-9] In our opinion, cold therapy should not be used in treating pit viper bites.

## Summary

The northern copperhead (Ancistrodon contortrix mokeson) is the only venomous snake indigenous to Delaware. A survey of hospitals, practicing physicians, and death certificates provided an estimated 8 copperhead bites per year — an incidence of 1.79 bites per 100,000 population. There were no fatalities.

Males were bitten more frequently than females and over 50% of the victims were less than 20 years of age. All of the bites happened from May through October.

The currently recommended treatment for copperhead bites includes incision and suction, the "3 A's" (antivenin, antibiotics and antitetanus prophylaxis), and general supportive measures.

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## THE INFORMATION DELUGE

"It usually is called the *information explosion*, but the metaphor is inappropriate. We were not suddenly awakened one day to a thunderclap and fallout of printed words on paper. *Deluge* is more appropriate . . . information has been pouring forth in an ever-rising stream, and the flood stage was reached when the systems for channeling information storing it, and converting it to useful purposes no longer were able to cope with the flow.

Last year in the United States we chopped down trees to produce 20 million tons of paper—more than 200 pounds per person—which was twice what we produced in 1950. There were 30,000 new books published, compared to 11,000 in 1960. This does not include books published by the Government; with an untold number of different titles, the U.S. Government Printing Office sold more than 60 million books and pamphlets last year and distributed many more free to libraries and offices." (The Information Deluge, Johns Hopkins Magazine, Fall, 1967.)

The body of recorded scientific and technical information now has a volume of about 10 trillion alphanumeric characters (ie, letters, numerals, and punctuation marks) and is increasing along (what for lack of precise data is usually assumed to be) an exponential curve characterized by a doubling time in the range of ten to fifteen years . . . (which is a rate more appropriate for novels than for journal articles). Sixty years ago, according to our simplifying assumptions, the 3,000-character-per minute reader needed only twenty-five minutes a day to keep up with everything in his field. Eleven years hence, he will have to read continuously, every hour of every day. (J.C.R. Licklider, *A Crux in Scientific and Technical Communication*, American Psychologist, Nov., 1966.)

# CPC Wilmington Medical Center

## Pleural Effusion, Cardiomegaly, Hepatomegaly, Fever, and Peripheral Neuropathy in a 65-Year-Old Man

LEONARD P. LANG, M.D., *Editor**

### Presentation of Case

*First Hospital Admission* — This patient was a 63-year-old man admitted because of progressive loss of weight, intermittent temperature elevation, shortness of breath and wheezing. He was known to have had rheumatic heart disease for thirty years but had been under treatment for only two years. When first examined, he was noted to have grade 3/6 systolic and diastolic murmurs at the base. An ECG showed a left heart strain pattern. Chest x-ray revealed a honeycomb effect in the right apex and right mid-lung which had been unchanged for a number of years. He had consumed large amounts of alcohol and two to three packs of cigarettes daily for many years. He was treated with a diuretic and when next seen, some nine months later, cardiac and hepatic enlargement were noted.

Seven months before admission the sequence of events began which finally brought him to the hospital. He was found to have increasing cardiac enlargement, a right pleural effusion and an infiltrate in the right lung. After digitalization, he lost five pounds. The pleural effusion and pulmonary density cleared almost completely with this treatment. During the ensuing months, he was noted to have a fever on three or four occasions. Three weeks before admission he developed severe left sided chest pain which lasted for several days and disappeared spontaneously. His condition continued to deteriorate and he was admitted.

Widespread rhonchi and wheezes were heard over the lung fields with impaired percussion note at the right base and the left axilla. The heart was enlarged to the left. One observer described a grade 3/6 systolic murmur at the aortic area and a grade 3/6 diastolic murmur at the apex; another, a grade 3/6 diastolic murmur in addition at the base. The cardiac rate and rhythm were normal. The liver was palpable 2 fingers' breadth beneath the right costal margin; this was smaller than on previous examinations. There was 2+ ankle edema.

Urinalysis was normal. RBC were 3.84 million with Hgb of 12.7 gm. WBC were 8,800 with 78% neutrophils, 14% lymphocytes, 2% monocytes and 6% eosinophils. There was 7.4% retention of BSP at 45 minutes. The BUN was 7 mg/100 ml; SGOT, 10 units; and thymol turbidity, 0.9 units. A postprandial blood sugar was 115 mg/100 ml. Chest x-ray showed an infiltrate in the right upper lobe, fibrosis in the right mid-lung area, an irregular diaphragm on the right, and fluid or thickened pleura at the left base. ECG showed a rate of 84 with P-R interval of 0.24 seconds. There was sagging of the S-T segments in most of the limb leads and in chest leads V5 to V8. The R waves measured 25 mm in lead V5. There was one premature ventricular contraction in the entire tracing. Numerous blood cultures were negative.

Initial therapy consisted of chlordiazepoxide (Librium), a diuretic, digitalis, and crystalline procaine penicillin, 600,000 units twice a day. From the day of admission through the seventh hospital day, he had temperature spikes reaching a peak of 102 F. On the ninth day, aqueous penicillin, 8 million units daily, I.V., was begun and at the same time prednisone, 2.5 mg twice a day was given. From the ninth day until the 20th day of hospitalization, temperature never exceeded 100 F. A chest x-ray on the 11th day indicated the development of a pleural effusion on the left. Thoracentesis on the 14th day produced 130 cc of blood tinged fluid. Culture of this fluid was negative. Smears and cell blocks showed large numbers of lymphocytes but no malignant cells. On the 14th day, isoniazid 400 mg/day was started and on the 18th day, an intercostal pleural and a lung biopsy were done which were reported as showing chronic non-specific pleuritis and focal interstitial pneumonitis. Penicillin was stopped on the 21st hospital day after approximately 12 days of high dose therapy. Symptoms of joint pain and stiffness, especially in the mornings became more severe and temperature reached levels of 101 F daily from the 21st to the 25th day, when acetylsalicylic acid was started in doses of 0.6 gm, four times a day, and increased to 3.6 gm daily on the 31st hospital day. From the 25th to the 29th day the temperature was normal, but elevations to 100 F occurred from the 29th to 31st days. Salicylate levels were 3.5 mg% on the 29th day, 8.7 on the 33rd day and 17.2 mg% on the 40th day. Prednisone which had been given in doses of 5 mg daily from the 9th day onward was increased to 60 mg daily on the 30th day and then decreased to 30 mg daily until discharge. Temperature reached normal on the 31st day and continued at this level until discharge. He improved with this therapy but still felt weak and fatigued. His blood pressure ranged from 120-160, systolic; and 40-60, diastolic.

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A neurological consultant found bilateral weakness of the quadriceps muscles and poor coordination of the lower extremities, he felt this was due to peripheral neuropathy. Lumbar puncture produced clear fluid with normal pressure. It contained 1 WBC/hpf, sugar of 85 mg%, protein 43.4 mg%. Sedimentation rate was 96 mm in one hour on the 25th day, 94 mm on the 32nd day, 87 mm on the 41st day and 107 mm in one hour on the 45th day. On the 29th day, WBC was 6,583 with a differential of 80% neutrophils, 1% band forms, 13% lymphocytes, 1% monocytes and 5% eosinophils. A total eosinophil count the same day was 242 cu ml. ASLO titer was 10 Todd units on the 25th day. RBC was 3.62 million with 10.6 gm Hgb. R A test was reactive and L E prep negative on the 23rd day. He was discharged taking acetylsalicylic acid, 7.8; digoxin, 0.75; potassium chloride, 1.2; prednisone 20; isoniazide, 400; pyridoxine, 100; and thiamin chloride, 75 mg daily.

*Second Hospital Admission (12 days later)*—He was readmitted because of progressive weakness of his legs, thickness of speech and lethargy. He had become anorexic and stopped all of his medications except for digoxin. Following this, there was a prompt recurrence of his fever.

On this admission he was noted to be pale, the temperature was 99.6 F. His speech was thick, the liver was barely palpable, and a question of ascites was raised. There was three plus edema of his ankles. Quadriceps weakness was more marked than on his previous examination. The rest of the examination was unchanged from that previously noted.

RBC's were 3.70 million with 9.3 gm Hgb, WBC's were 8,432 with 82% neutrophils, 17% lymphocytes and 1% eosinophils. A bone marrow was reported as normal and culture of the marrow was negative. The urine specific gravity was 1.010 and contained 5-6 RBC and 1-2 WBC/hpf and an occasional granular cast. Serum proteins were 4.8 gm total with 2.0 gm albumin and 2.8 gm globulin. Bilirubin direct was 0.09 and total 0.1 mg%. A repeat lumbar puncture was done on the 3rd day with normal dynamics and clear fluid obtained. No cells were seen and the protein was 24.6 mg%. Another L E prep was negative. Repeat hematocrit was 30% with 8.9 gm/Hgb and a sedimentation rate of 105 mm/hr. On the 4th hospital day, a skin and muscle biopsy was performed. The skin was reported as showing edema and the muscle showed atrophic changes. The next day ascites were definitely present; SGOT was 11 units; and the urine was negative for bile and urobilinogen. Serum electrophoresis reported a total protein of 4.8; albumin, 1.6; globulin, 3.2; alpha I, 0.39; alpha 2, 0.85; Beta, 0.68; and gamma globulin 1.29 gm. On the 6th day, he experienced an episode of confusion and was unable to speak. This cleared spontaneously. On the 7th hospital day, a G.I. series showed a deformed duodenal cap without any acute ulceration demonstrable. A barium enema showed only a few sigmoid diverticula. The edema became progressively worse, but responded to some degree to administration of I.V. salt poor albumin and on the 11th day an inferior vena cavagram was done which was normal. Two units of packed cells were given and the hematocrit rose to 39.2% and the hemoglobin to 12 gm. Liver scan showed enlargement with a defect in the anterior half of the right lower lobe. Serum iron was 39 gamma%; TIBC, 243 gamma%; and iron stores were reported as deficient. A repeat G. I. series now showed a posterior wall gastric ulcer.

His temperature which had not risen above 100 F and which for the most part had been normal, rose to 101 F on the 21st day and to 101.4 F on the 22nd day. He complained of muscle pains and bilateral rhonchi were noted. On the 24th day, he became dyspneic, the neck veins were distended, bilateral coarse rales were heard in both lung bases and the liver was tender. His course then proceeded rapidly downhill and he expired on the 26th day.

## Differential Diagnosis

Dr. Charles S. Riegel*: In discussing this patient, the salient features include his progressive loss of weight, intermittent temperature elevation and dyspnea. In regard to his abnormal physical findings, the cardiac enlargement, pleural effusion and infiltrate in the right lung appear to be important, as well as the hepatic enlargement and dependent edema.

It was thought that his pleural effusion may have been on the basis of congestive heart failure and because of this, digitalis was one of the cornerstones of treatment. His cultures were negative. A pleural biopsy showed evidence of "pleuritis" and the material obtained by thoracentesis contained a large percentage of lymphocytes. Lymphocytosis of pleural fluid is most commonly seen in tuberculosis, but there have also been a number of cases reported in which lymphocytosis was present with bronchogenic carcinoma with pleural involvement.

With tuberculosis a possibility, the patient received INH during most of his first hospitalization from the 14th to 50th days. Although there was some reduction of temperature during this time, he did have several days of increased fever after having been on INH for some time, and fever continued during his second hospital admission. We must consider the fact that the patient's pulmonary infiltrate was not extensive and was not progressive as were his joint pain and stiffness, peripheral neuropathy, and consistently elevated sedimentation rate.

I have given considerable attention to the fact that the patient showed a progressive myopathy with weakness of his lower extremities. He also had an attack of temporary aphasia. The neurological consultant felt that the weakness of the quadriceps muscles with poor coordination of the lower extremities was due to a peripheral neuropathy. Dr. Daniel Drackman,[1] attending neurologist at the New England Medical Center, has collected a considerable amount of data on neurological manifestations of systemic disease. In one large series of older patients where symmetrical and proximal myopathy was one of the presenting symptoms, 70% had an underlying malignancy. Even more striking was the fact that in 50% of all of the cases with remote neurological manifestations in which carcinoma was later proven, bronchogenic carcinoma was the specific diagnosis. In these cases pain was not a prominent sign.

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Dr. Drackman also pointed out that in cases of symmetrical progressive myopathy in which the patients are over 50 years of age, the largest percentage is due to carcinoma. Under 50 years of age, collagen disease is the usual etiological factor.

During the course of this man's illness, he also developed a progressive anemia. Was this the anemia of iron deficiency, chronic inflammation, or of bone marrow failure? We are helped considerably by the serum iron and total iron binding capacity (TIBC). Both figures were considerably reduced below normal values and it seems to me, therefore, that the progressive anemia was not a manifestation of blood loss but was due to chronic inflammation or infection. In chronic inflammation, both the free iron and TIBC are decreased, while in iron deficiency anemia, the TIBC is elevated. Iron stores are also important in diagnosis. We were told that initially his bone marrow was normal, but during his terminal state, marrow iron stores were found deficient. In inflammation, iron stores are usually increased, so we may assume that there may have been a terminal component of iron loss, inadequate intake, or delayed absorption.

A G.I. series done during the latter part of this man's life showed a gastric ulcer, but I believe this to be a terminal event adding blood loss to the anemic etiology.

We are also told that the patient had hypoproteinemia with decreased serum albumin. This diminished synthesis may be on the basis of inadequate dietary protein or liver cell damage. Isotopic studies indicate that half of the circulating albumin is replaced every 20 days, so a low albumin is common in chronic liver disease.

The patient had a markedly increased sedimentation rate (ESR) during the entire course of his hospitalization, positive rheumatoid factor, and a negative LE preparation. There is increased ESR whenever there is tissue breakdown, whether due to infection or neoplasia. An increased ESR of this magnitude is due more to the widespread nature of the disease than to the type of disease present. For example, a high sedimentation rate may be found in tuberculosis, but it is usually present only with widespread disease and the same principle holds for metastatic disease. A sedimentation rate of over 100 mm/hr certainly points to a collagen disease such as lupus erythematosus or polyarteritis nodosa in which there are widespread and multi-system involvement, or to sub-acute bacterial endocarditis, serum sickness or infectious arthritis. The factors responsible for increased ESR are not fully understood, but the most important of them is thought to be an increase in blood fibrinogen or globulin. The rheumatoid factor which was present in this patient is actually a macroglobulin circulating in the plasma combined with gamma globulin. This "rheumatoid factor" appears to be an antibody produced in response to an altered gamma globulin. This complex agglutinizes sensitized sheep red cells, latex, or bentonite particles which have been coated with human globulin. It is called rheumatoid factor because of its more frequent occurrence in rheumatoid arthritis — 70 to 85% — but it also is found in other diseases as varied as tuberculosis, infectious hepatitis, syphilis, sarcoid and subacute bacterial endocarditis. LE preparations are not as specific as we were once led to believe; the LE test being negative in approximately 10% of cases of otherwise well-documented lupus erythematosis. LE preparations do not correlate particularly well with the clinical manifestations of the disease. Rothfield and Pace[2] report that approximately one-half of their patients who were clinically ill with proven lupus had negative LE tests, but at other times while relatively well clinically, had positive LE tests.

I believe the differential diagnosis of this patient includes collagenosis, specifically polyarteritis nodosa or lupus erythematosus; carcinoma of the lung; tuberculosis; and, subacute bacterial endocarditis.

Polyarteritis is most often seen in the fourth decade of life although it has been reported in the infant and the aged. It is more common in men than in women with muscle tenderness and aching and arthralgia being prominent early features.

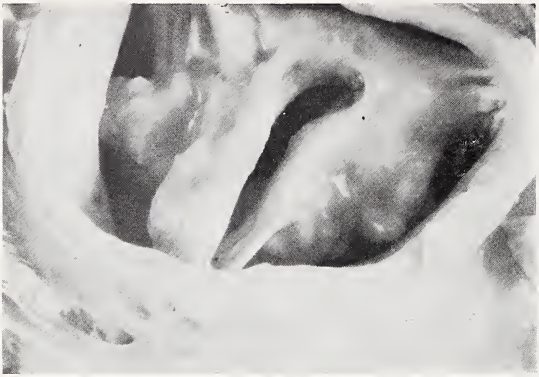

Figure 1
Aortic Valve showing stenosis due to fused, thickened and calcified cusps.

Cerebral symptoms due to the vasculitis of the cerebral vessels is also a very common manifestation and we were told that this patient did develop confusion and aphasia.

Pulmonary alterations occur in approximately 25% of the patients with polyarteritis and the association of polyarteritis with bronchial asthma has long been stressed. In many cases, a high eosinophil count is found but this is not a necessary feature. The common occurrence of rheumatic heart disease with polyarteritis has been recognized for many years. A moderate degree of hepatomegaly is usual. Polyarteritis is the most frequent cause of large hepatic infarcts. Because of the involvement of the hepatic arterial and venous radicals, true hepatic infarction may occur, and because of the large defect in the hepatic scan, we may assume this occurred in our patient.

Peripheral neuritis is the most commonly accounted abnormality of nervous function, and our patient had ample evidence of this involvement.

In lupus erythematosis, which affects women six to eight times more frequently than men, muscular, skeletal and pulmonary manifestations are not rare. A pathological report of interstitial pneumonitis is not infrequently found in many of the collagen diseases, particularly lupus and polyarteritis.

Dr. Gaenzler[3] of the Boston University Medical Center has reported on a large number of cases of collagen disease in which the diagnosis of chronic organizing interstitial pneumonitis was made by pulmonary or lung biopsy. Although rheumatoid arthritis constituted the largest group, the lung was involved in only one to two percent. In scleroderma, one of the rare types of collagen diseases, pulmonary manifestations were present in up to 50% of all cases. In lupus erythematosis or polyarteritis, 40 to 50% of lung biopsies show pathological changes.

With the evidence here of widespread or multi-system involvement which favors a collagenosis, I was somewhat dismayed by the absence of significant renal pathology. Urinalysis showed a trace of albumin and five to six RBC/hpf, but it would certainly be more usual for this patient's urinalysis to have been more significantly altered during the course of his disease.

We also have to include sub-acute bacterial endocarditis (SBE) in our discussion because we were told that this patient had evidence of a valvular defect and weakness, fever, and arthralgia which are usual symptoms of SBE.

Emboli may certainly produce paralysis, chest pain and vascular insufficiency with pain in the extremities. Physical findings in SBE

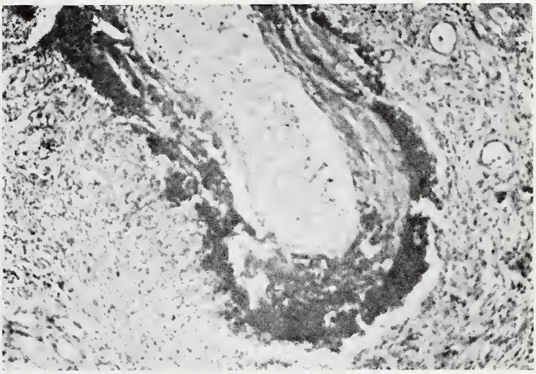

Figure 2
Medium-sized artery showing smudgy fibrinoid necrosis and diffuse inflammation fibrinoid.

are extremely variable but may include cardiac failure and changes in cardiac murmurs; arthralgia is often present. In our case the commonly found splenomegaly and petechiae of SBE were not discovered.

Leukocytosis, anemia, and increased sedimentation rate are the rule. The latex fixation (RA) test is commonly positive. It is also common to find an abnormal thymol turbidity test and mild hyper-bilirubinemia.

The differential diagnosis thus includes: polyarteritis nodosa, lupus erythematosis, bronchogenic carcinoma with metastases, subacute bacterial endocarditis, and tuberculosis.

### Dr. Charles S. Riegel's Primary Diagnosis

1. Polyarteritis nodosa

### Pathological Discussion:

Dr. Patrick F. Ashley*: At autopsy, the heart was considerably enlarged, weighing 700 gm, essentially due to hypertrophy of the left ventricle with the muscle measuring up to 3 cm on cross section. There were areas of fibrosis noted grossly as well as microscopically. The etiology of this hypertrophy was due to calcific aortic stenosis (Figure 1). The great majority of cases of calcific aortic stenosis are considered to be rheumatic in origin. This was apparently so in this case as a previous history of rheumatic fever was elicited. He had a moderate degree of calcific coronary artery disease. The pleural cavities were obliterated by fibrous adhesions. The lungs were heavy and edematous and the right lung, especially the upper lobe, presented a honey-comb pattern, a result of emphysematous cysts.

The kidneys were enlarged to almost twice normal size and showed miliary cortical nodules which were thought to represent pyemic abscesses. However, on microscopic examination, these renal lesions were a result of a diffuse polyarteritis involving the medium sized arteries particularly but also smaller arteries and veins. Other organs showing this polyarteritis were the liver, testes, adrenals, prostate and skeletal muscles. This arteritis was characterized by extensive fibrinoid necrosis associated with an intense inflammatory reaction permeating all coats. Eosinophils were prominent (Figures 2 and 3).

Fibrinoid necrosis is characteristically seen in many of the hypersensitivity reactions associated with cellular exudation and necrosis. In certain hypersensitivity diseases termed "collagen diseases," the fibrinoid material represents an alteration of the collagen fibers and ground substance to fibrinoid with deposition of fibrinogen or gamma globulin from

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*Dr. Ashley is Senior Pathologist, Wilmington Medical Center.

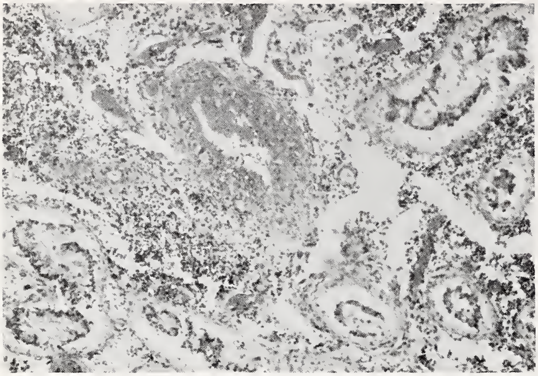

Figure 3
Small testicular artery showing polyarteritis.

the plasma. The systemic diseases that fall in the category of collagen diseases are not so clearly defined as one may wish and lists of such diseases vary. The following tabulation represents a rather liberal viewpoint:

1. Serum sickness
2. Systemic lupus erythematosus
3. Polyarteritis (periarteritis) nodosa
4. Giant cell (allergic, granulomatous) arteritis
5. Necrotizing respiratory granulomatosis (Wegener's granulomatosis)
6. Rheumatic fever
7. Glomerulonephritis
8. Rheumatoid arthritis
9. Dermatomyositis
10. Diffuse scleroderma

All these diseases show evidence of fibrinoid necrosis of varying degree with involvement of arteries and arterioles. In the case under discussion, the pathological changes are in keeping with polyarteritis (periarteritis) nodosa.

There are no clinical laboratory findings diagnostic of polyarteritis nodosa. Eosinophilia, as was present in this case, is helpful when it occurs but is observed in somewhat less than half of the patients. The best way to establish a positive diagnosis is from biopsy of a characteristic arterial lesion, but this is easier said than done. As the testicles are frequently involved, a biopsy of this organ rather than a random muscle biopsy would probably be more productive in finding the lesions.

**Anatomical Diagnosis:**

1. Polyarteritis nodosa involving principally the kidneys, testicles, adrenals, prostate and skeletal muscles.
2. Aortic stenosis due to calcific aortitis.
3. Chronic pleuritis, pulmonary emphysema and fibrosis.
4. Congestive heart failure.

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## MATERIAL AVAILABLE

"There is a crisis in U.S. Health Care and it is not simply one of numbers." (The complete Report of the National Advisory Commission on Health Manpower, Nov. 1967—available for $.45 from the U.S. Government Printing Office.)

# GRAM-NEGATIVE ROD SEPTICEMIA

## A Review

**● Hospital-acquired infection has presented a problem to the clinician ever since patients have been gathered under one roof for diagnosis and treatment of disease. Recent medical advances have made the patient even more susceptible to such infection. This report defines some of the local experience.**

William J. Holloway, M.D.
E. G. Scott, M.S.

Nosocomial infections due to antibiotic-resistant bacteria have presented a problem to the clinician throughout the antibiotic era. In the mid 1950's the primary concern was for the increasing incidence of hospital-acquired infections due to the Staphylococcus aureus. In the past decade, many institutions have reported[1,2] a decrease in staphylococcal infections with a concurrent increase in infections due to the gram-negative intestinal organisms. There has been considerable speculation as to the reasons for this change in the microbial milieu of the general hospital. The development and clinical performance of the excellent new antibiotic agents probably have played a very small part in this microbiologic evolution. More important have been factors affecting host resistance, production of new artificial avenues of infection, and the ability of gram-negative enteric organisms to utilize environmental fomites. The more recently recognized phenomenon of the resistance factor[3] and its influence on antibiotic-sensitive microorganisms undoubtedly plays a role.

It seems obvious that for the medical staff of a hospital to institute necessary steps to control this problem of sepsis, they must constantly identify and monitor the local problem. For this reason we have again reviewed the experience at the Delaware Division of gram-negative rod sepsis during a five-year period, 1962 through 1966, and will compare these results with a five-year period previously reviewed, 1955 through 1959.[4] In addition, we also will review briefly the data for the year 1967 and call attention to certain recent epidemiologic and therapeutic changes.

### Material and Methods

The name and medical record number of all patients with one or more positive blood cultures during the years 1962 through 1966 were obtained from the records of the Microbiology Laboratory. The clinical charts of 143 patients were reviewed, and 119 of these were included in the study on the basis of positive blood cultures and clinical evidence of sepsis. Patients who had transient bacteremia without obvious clinical evidence of sepsis were not included in the study. The fact that occasional patients might be included or excluded from the study by error is recognized; however, when all parameters of sepsis are taken into consideration, the possibility of this error seems extremely remote.

### Causative Organisms

Table I compares the more common pathogens isolated from blood cultures in the two

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Table I
Common Pathogens from Positive Blood Cultures

| | 1955-1959 | 1962-1966 |
|---|---|---|
| *Staphylococcus aureus* | 88* | 60 |
| Pneumococcus | 43* | 44 |
| beta-hemolytic Streptococcus Probably group A | 18* | 21 |
| Other streptococci | 22* | 25 |
| Gram-negative rods | 100 | 119 |
| Total | 271 | 269 |

*less 3 months 1955

time periods, 1955-59 and 1962-66. It is apparent that in the 1960's there has been an increase in the total number of cases of gram-negative rod sepsis. More impressive is the increased percentage of fatalities in the 1962-1966 period — 48 per cent as compared to 39 per cent in the earlier period. This paradox occurs in spite of the new antibiotics that have become available in the past few years. Host resistant factors may be the most important single cause of this significant increase in mortality.

The remaining tables (II to VI) relate only to the 1962-1966 study. Table III lists the cases according to year, and it will be noted that there has been greater than a two-fold increase in the number of cases from 1962 to 1966. During two years, 1963 and 1965, the mortality exceeded 50 per cent, reaching 62 per cent in 1965.

The distribution of cases by causative organism is shown in Table IV. The coliform bacilli continue to account for the majority of the infections, although there is a definite increase in the number of cases of pseudomonas septicemia. In comparing the current study with that done in the 1950's,[4] only nine cases of pseudomonas sepsis were recorded in the earlier study, while fifteen such cases occur in the present series. The clinical importance of this apparent increase in pseudomonas infections emphasizes the high mortality rate with this organism in both time periods reviewed.

**Age Groups**

Table V tabulates the cases of sepsis, 1962 through 1966, according to age group. Ten per cent of the cases of gram-negative rod septicemia occurred in the first year of life, and the highest mortality rate is seen in this group. The incidence of sepsis then decreases until the over-fifty-years-of-age group, at which time there is an increase in the number of cases as well as the mortality rate; this increase in mortality continues through the next two decades. The high mortality in this older age group may be related to the high incidence of arteriosclerotic cardiovascular disease.

**Portal of Entry**

As indicated in Table VI, the urinary tract was the most common portal of entry for the gram-negative rods, excluding the patients in the pediatric age group. The majority of the patients with a urinary tract portal of entry had been subjected to urologic manipulation or had undergone bladder catheterization prior to the onset of infection; one-third of the patients had experienced long term indwelling bladder catheterization. Peritoneal soiling, either by surgical intervention or viscus perforation, occured in 14 patients, and there was a high mortality rate associated with this avenue of infection. By contrast, the low mortality rate in gram-negative rod sepsis complicating infection of the female genital tract should be noted. Six of seven of these patients had gram-negative rod sepsis secondary

Table II
Cases of Gram-Negative Rod Sepsis

| Year | Number of Cases | Mortality (per cent) |
|---|---|---|
| 1955-1959 | 100 | 39 |
| 1962-1966 | 119 | 47.9 |
| 1967 | 42 | 39.1 |

Table III
Cases According to Year

| Year | Cases | Recovered | Died |
|---|---|---|---|
| 1962 | 15 | 11 | 4 |
| 1963 | 20 | 9 | 11 |
| 1964 | 28 | 15 | 13 |
| 1965 | 21 | 8 | 13 |
| 1966 | 35 | 19 | 16 |

Table IV
Cases According to Causative Organism

| | Cases | Recovered | Died |
|---|---|---|---|
| E. coli | 44 | 26 | 18 |
| Klebsiella | 32 | 16 | 16 |
| Pseudomonas | 15 | 4 | 11 |
| Proteus | 13 | 9 | 4 |
| Bacteroides | 8 | 4 | 4 |
| Unidentified | 3 | 3 | 0 |
| Two or More Isolates | 2 | 0 | 2 |
| Herellea | 1 | 0 | 1 |
| Providence | 1 | 0 | 1 |

to septic abortion. The low mortality rate in these patients can best be explained by the observation that they were all young, healthy individuals without significant underlying pathology.

As might be anticipated, patients whose sepsis followed central nervous system surgery with insertion of a prosthesis suffered a high mortality rate. This was also true of those with septicemia secondary to burn wound sepsis.

In spite of intensive study of these sepsis patients, there were 23 (20 per cent) in whom the portal of entry was unknown. In eight of these there was a leukopenia secondary to cancer chemotherapy, and it is possible that the intestinal tract provided the portal of entry for the gram-negative organisms.

The clinical charts of the 119 patients in this study were reviewed for evidence of the clinical findings usually associated with gram-negative rod septicema. All but three of the patients exhibited fever, while over 80 per cent also experienced chills; a lesser number demonstrated tachycardia, cyanosis, and confusion. Slightly more than one-third of the patients suffered septic shock, characterized by a significant fall in blood pressure with tachycardia and oliguria. The hemorrhagic bleb, a typical finding in pseudomonas septicemia, was only seen in one patient of the 15 cases reported in this study.

Leucocytosis, left shift, anemia, and uremia were common findings in the laboratory studies of the patients reviewed. A marked leucocytosis with left shift was so consistently observed that one could be certain that patients not exhibiting this parameter had a hematologic defect, either leukemia or hematopoetic suppression due to cancer chemotherapy.

There was no recognized difference in the clinical syndrome produced by the various organisms.

### Therapy

Since a number of physicians were responsible for the direction of therapy in these patients, a critical analysis of the results becomes difficult. Therapy was considered to be appropriate or adequate if antibiotics were given that are known to be effective by results of *in vitro* susceptibility testing. Therapy was considered inappropriate or inadequate if no antibiotics were given; if the antibiotic was given by the improper route or in improper dosage; or if the antibiotic was shown to be ineffective by specific *in vitro* susceptibility testing. By these criteria, 73 of the patients (61 per cent) received adequate or appropriate therapy; of these, 52 survived, and 21 died. Forty-six patients (39 per cent) were given inappropriate or inadequate therapy; 9 patients survived, and 37 succumbed to the infection.

The cephalosporin antibiotics, cephalothin and cephaloridine, and the semi-synthetic penicillins, ampicillin and hetacillin, were the most commonly used single antibiotic agents. The polymyxin antibiotics were also used singly on occasion but were most often given in combination with another antibiotic. Rarely, tetracycline or chloramphenicol were used alone; they were more commonly given in combination with streptomycin.

In the years 1965 and 1966 there was an increase in the number of cases of gram-negative sepsis treated with kanamycin; and, if pseudomonas infection was considered a possibility, polymyxin was added. While the number treated is too small for critical analysis, it would appear that the use of kanamycin alone or, when indicated, along with polymyxin, is the treatment of choice

Table V

Cases According to Age Group

| Age in Years | Cases | Recovered | Died |
|---|---|---|---|
| 0-1 | 12 | 4 | 8 |
| 2-10 | 9 | 4 | 5 |
| 11-20 | 7 | 6 | 1 |
| 21-30 | 5 | 5 | — |
| 31-40 | 8 | 6 | 2 |
| 41-50 | 10 | 6 | 4 |
| 51-60 | 18 | 7 | 11 |
| 61-70 | 30 | 14 | 16 |
| 71-80 | 14 | 8 | 6 |
| >80 | 6 | 2 | 4 |

Table VI

Cases According to Portal of Entry

| Portal of Entry | Cases | Recovered | Died |
|---|---|---|---|
| Urinary tract | 51 | 35 | 16 |
| Peritonitis | 14 | 3 | 11 |
| Female genital tract | 7 | 7 | 0 |
| Surgical wounds | 6 | 4 | 2 |
| CNS surgery | 6 | 1 | 5 |
| Burn wound sepsis | 6 | 2 | 4 |
| Biliary | 3 | 2 | 1 |
| Respiratory tract | 2 | 0 | 2 |
| Intra-arterial cannula | 1 | 0 | 1 |
| Unknown | 23 | 6 | 17 |

in gram-negative rod sepsis. Gentamicin has been reported[5] to be effective in pseudomonas infections as well as other gram-negative rod infections, and it was used in several patients included in this study. Four patients with pseudomonas septicemia responded to gentamicin therapy, but since there was a tendency to use this agent as a "last resort," an evaluation of the results is not possible.

Forty of the 119 patients (33.6 per cent) in the study were receiving prophylactic therapy at the time of onset of sepsis; and, in all but two instances, the infecting organism was resistant to the prescribed antibiotic. This reconfirms our observation of 1960 that nonspecific prophylactic therapy will not protect against hospital-associated gram-negative rod sepsis.

Steroid therapy, usually with vasopressors, was given to most of the 42 patients who suffered vascular collapse. The agents used, as well as the dosage, frequency of administration and route of administration, varied too greatly to permit any significant analysis.

### 1967

Since this review was started, the statistics for the year 1967 have become available, and certain significant changes warrant a brief comment at this time. During 1967, 42 instances of gram-negative rod sepsis occurred at the Delaware Division of the Wilmington Medical Center — a new high for a single year. There was no increase in the total number of blood cultures obtained, and there is no reason to think that the physicians were more astute in requesting cultures. Apparently, therefore, there is an increase in the incidence of this type of infection.

An interesting observation is the apparent marked increase in the number of cases of proteus septicemia (11 *Proteus mirabilis*, 1 *Proteus morganii*). The twelve cases in the single year of 1967 contrast with 13 cases in the five-year period 1962 to 1966. There was no clinical pattern common to the patients with this infection and no explanation for this number of cases becomes immediately apparent.

There were four cases of pseudomonas septicemia in the year 1967, indicating the continuing importance of this organism as a pathogen in critically ill patients. All four of these patients died. It is lamentable that only one patient of the four received appropriate antibiotic therapy.

Sixteen of the 42 patients in 1967 failed to survive their infections, resulting in a mortality rate of 39.1 per cent. It is significant that 10 of the 16 fatal cases received inappropriate or no therapy. Since the recovery rate for 1967 is the best to have been realized in our hospital since 1962, it is hoped that this represents improvement in the early detection and proper treatment of gram-negative rod sepsis.

### Summary

The cases of gram-negative rod sepsis occurring in the five-year period 1962-1966 have been reviewed and compared with the five-year period 1955-1959. There appears to be an increase in the total number of cases of gram-negative rod sepsis with a concomitant decrease in the number of cases of staphylococcal sepsis. There was an increase in the mortality rate from gram-negative rod sepsis during the five-year period in the 1960's.

The physicians in our hospital are challenged to find ways of preventing gram-negative rod sepsis in the critically ill or immunologically impaired patient. A high index of suspicion and early blood culturing are necessary for prompt diagnosis. Without awaiting laboratory confirmation, the clinician should institute therapy with kanamycin alone or, when indicated, in combination with polymyxin.

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## WE ABNORMAL NORMALS

"The hypothetically well individual is a nonentity so far as the practicing physician is concerned. He deals with real individuals who are perhaps never completely well physically and psychologically and are certainly not well all of the time. The patients the physician sees are as diverse as the number of different fingerprints there are in the world, as our studies show.

"One of the first studies coming from our laboratory indicating the importance of the individual approach to dealing with people or animals of any sort was one in which twelve healthy young people were studied individually, using repeated tests, with respect to their taste sensitivities to various substances, the composition of their saliva (with respect to amino acids, etc.) and the composition of their urine with respect to items that could be determined by paper chromatography . . . each individual is indeed distinctive.

"While there is no individual who fails to exhibit several values that are approximately normal, no individual fails to exhibits values that are far removed from the average. If reasonable *norms* were established for each of the items, each of the individuals would doubtless exhibit a number of abnormalities or disconformities. Every individual is typical, about average and *normal* with respect to some values but is atypical, far from average and *abnormal* with respect to others.

It may be noted that among the metabolic profiles only two (numbers 12 and 13) show a strong resemblance to each other. These two patterns belong to a pair of identical twins. (Dr. Roger J. Williams, Professor of Chemistry at the University of Texas, Author of a new book, *You are Extraordinary.*)

## HEARING LOSS

Of the millions of Americans with a hearing loss, about 200,000 cannot hear even the loudest speech well enough to understand it. For everyday living needs, their sense of hearing does not work. Under the new terminology, these are the people who are "deaf." Of course, a much larger number suffer from less severe degrees of hearing loss.

Impaired hearing is one of the leading causes of chronic disability. With many, it is a serious disability. Probably about three million persons have major hearing defects.

About one million American children, including some who are too young to be in school, have a significant handicap in hearing, according to a recent estimate based on a survey of children in one large city.

# THE HOSPITAL: From Then to Now

**• To those who have been associated with medicine in Delaware, and especially in Wilmington, Mr. Charles A. Silliman's book, "The Hospital: The Story of Delaware Hospital," will make fascinating reading.. Excerpts will be found here and in next month's issue.**

After 1881, therefore, there were no hospitals in the city and the sick were cared for in their homes, or the Almshouse if they didn't have a home. In the case of accidents, people had limbs amputated at the police station or the doctor's office, or anywhere else it was convenient. Then they were sent home to recover.*

* * *

Miss Julia C. Wilson, the first head nurse and superintendent of the hospital, arrived February 17, 1890. She studied nursing at the Philadelphia General — known as Blockley in those days — and the University of Pennsylvania Hospital where she was in charge of the maternity department.

Many years later she recalled her arrival at Delaware Hospital on that February day in 1890:

. . . (I) found the one first building and a very worried treasurer — Henry C. Jones — who was sure the bills for running could never be paid, even though we were to start with only six beds in use. . . They expected me to do day and night duty alone. I assured them no one would undertake that and induced them to allow me to get undergraduates from the Episcopal Hospital in Philadelphia. They were paid $16.00 per month and changed frequently. We were soon using all the room there was and the monthly bills were always paid. . .'*

In November, 1902, the hospital acquired on a loan basis, its first x-ray machine, loaned by a member of the staff, Dr. Jesse Williamson. It was installed in a third story room of the new building. . .

The machine was returned to the doctor about 1904 and a completely new set donated in 1905 by Mrs. Alexis I. duPont and her daughters in memory of her husband, Dr. Alexis I. duPont (1843-1904). The x-ray department was officially opened by Dr. Samuel C. Rumford, February 1, 1906. That year he took over forty pictures charging patients around $1.00 each. The price was later increased to $5.00.

Dr. Robert E. Ellegood, who used the Delaware Hospital machine from about 1908 on, said it was an induction coil type called a Rumkorf, requiring five minutes to take a picture. He said it was dangerous work if you were careless, and many operators lost arms, hands, and fingers. .

He recalled one evening when he was running the apparatus he thought there must be be a lot of mosquitoes around because he had to keep slapping at his ankles all the time. Later, when he went out to get something to eat, a friend asked him where his socks were?

'On my feet,' he replied. 'Where would they be!'

His friend shook his head sadly and Dr. Ellegood followed his gaze down to his ankles to discover they were bare. He had been stung by sulfuric acid dripping from the machine. It had eaten away his socks around his ankles leaving the tops, held by his garters, high on his legs.

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*Chapter I, Allopaths vs Homeopaths, p. 5.

*Chapter II, Growing Pains, p. 16.

In talking about the old x-ray machine, Dr. Ellegood explained the purpose of the induction coil was to increase the voltage to 100,000 volts or higher. There was no voltage meter in those days, so the only way an operator could tell it was high enough was to watch the spark coming from the end of the coil. When it reached a certain length, he knew the voltage was right. He also pointed out that all the wires were exposed, and on damp days sparks jumped all over the room.

One day a fellow doctor brought in his wife to have her head x-rayed. She suffered from severe headaches and was quite nervous about the machine. Her husband helped her onto the table and tried to quiet her down as Dr. Ellegood prepared the apparatus. Suddenly she grabbed one of the wires. The current shot through her, up through her husband, and out the tip of his nose — a distance of several feet — to the metal surface of the table. It didn't hurt them seriously because the doctor turned the current off immediately, but it burned a tiny hole in the end of the man's nose.*

* * *

Most of the doctors did a little of everything then, even to making up prescriptions in the drug room of the new building. The resident physician or intern could do much of this work, but there was no real supply on hand. If a doctor needed something in a hurry, often the best way to get it was to do it himself. It was good experience, Dr. Ellegood said.* (1920)

* * *

In order not to cut down on the nurses, a plan was worked out whereby all private nurses were placed on eight hour shifts at $25 a week and one meal a day so that three nurses would be as cheap as two. (1932)

In the City of Wilmington, Mayor George W. K. Forrest, who in private life was a physician on the staff of the Delaware Hospital, organized a relief committee to distribute food and supplies to the needy. The hospital was a recipient of many supplies from this group.*

* * *

Following the outbreak of World War II for America, many interns, physicians, and nurses volunteered or were called into the service leaving the hospital, like others throughout the country, shorthanded. As of June 30, 1942, the state had contributed eighty-five of its 340 doctors, or 25%; at the end of the year, the response was 152% of its quota.

The selection of those who were drafted was difficult. The federal government, anticipating that it might create undue hardship on hospital staffs left shorthanded, requested from every hospital a list of staff members the hospital felt it could spare for military duty. The government, of course, was not obligated to abide by these lists; it was simply giving each hospital a chance to declare itself on the matter, and state which doctors would be needed to run the hospital with some semblance of efficiency.*

* * *

All of the pediatricians went into the army except Dr. Wagner and myself," Dr. Handy said. "We were considered too old to do it, so they left us here to do the work at home. We divided it up. At 5:30 every morning I started making rounds at all three hospitals and newborn nurseries, and continued to do that. Dr. Wagner took over the sick babies in the children's ward at the Delaware Hospital, also any sick children at the other hospitals. You had to sort of give up your private patients, except the very ill ones.* (World War II)

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*Chapter III, Medical People, p. 45.
*Chapter III, Medical People, pp. 37, 38, 41.
*Chapter VIII, The Depression, p. 111.
*Chapter X, World War, p. 135.
*Chapter X, World War, p. 137.

# Highlights

## INDICATIONS AND RISKS IN CARDIOVASCULAR SURGERY

WILLIAM S. BLAKEMORE, M.D., *University of Pennsylvania. Medical Conference, WMC, January, 1968*

### Valvular Disease

As new devices and modifications of existing procedures are introduced in cardiovascular surgery, each must be evaluated for the risks inherent in an innovation. The advent of cardiopulmonary bypass has caused change to occur in a particularly rapid fashion.

In the case of mitral stenosis, surgery is indicated only after symptoms develop, but before the patient's compensation is severely disturbed. At the present time, because closed commissurotomy is associated with a smaller risk than open surgery utilizing cardiopulmonary bypass, it is still the preferred procedure. Although some of the patients who undergo closed commissurotomy develop restenosis, improvements in the technique of valvulotomy have decreased the incidence of second operations. Finger fracture of the mitral valve has been largely abandoned in favor of the transventricular dilation because the valve can be opened more widely with more control. The improvement of angiographic techniques has further aided in deciding which candidates are more suited for closed valvulotomy and which require open surgery. Cineradiographic suggestion of a clot in the atrium is considered an indication for an open procedure since the clots are associated with the embolic episodes which are the main cause of postoperative morbidity and mortality. These episodes can be prevented or at least decreased by removal of the clots during open surgery. Cineradiography also helps in determining the amount of functional regurgitation present. When the amount of regurgitation is significant, valvular replacement is usually indicated and requires cardiopulmonary bypass. The presence of valvular calcification which may result in embolic sequela is also demonstrated by angiography or cineradiography and indicates open surgery.

Other patients for whom open heart surgery is preferred are those whose past history consists of significant regurgitation before the development of stenosis. If the stenosis is correct by valvulotomy without the implantation of an artificial valve, a physiologically significant amount of regurgitation often recurs; the regurgitation which was present before the development of stenosis has weakened valve supporting structures so that even after commissurotomy they will not produce a competent valve.

For the second operation cardiopulmonary bypass is almost routinely required because of the increased technical difficulties associated with the fibrosis from the first surgery, and as the fibrotic strands are dissected, there is increased bleeding. These factors are partly responsible for the increased rate of mortality of any series utilizing cardiopulmonary bypass when compared to a series using only closed procedures.

A closed procedure is still preferred for certain patients in the poor risk group such as those who are older and have high pulmonary artery pressure and very marginal reserves. They are often referred to as the "cyanotic mitral group." The shorter operating time required for the closed procedure—one and a half hours versus the usual minimum three hours with open heart surgery—is another factor in decreasing the risk. At the present time, patients with a good chance for survival have an operative risk of less than 2% with a closed procedure, whereas for patients with cardiopulmonary bypass the rate is slightly higher but less than 5%. If only good risk patients were tabulated, the rate might be found to be slightly smaller.

Modifications of materials and the particular form of valve prostheses used continue. The modifications are chiefly intended to increase the functional life of the prosthesis and to decrease the tendency toward clot formation. Valve implants include homographs, heterographs, and, most frequently, completely artificial devices such as the well-known Starr-Edwards valve. At present, five years is approximately the longest follow-up period for patients with successful function of implanted valves, but it is hoped that soon the prostheses will last much longer and that the newer synthetic materials will increase valve longevity. Embolic phenomena still occur in approximately 5% of patients in whom a prosthetic device has been inserted. This percentage is a marked decrease from the 17% which occurred with the types of valves first used. Since surgeons vary in their technique and in their preference for individual types of valves, a comparison of results is difficult. Although research with homographs and heterographs has been done, the improvements in synthetic valves makes it likely that they will be used extensively in the future. Cadaver valve implants may become insufficient with time since they tend to calcify and contract. The series in which they have been used is relatively small. This type of valve seems to be associated with a somewhat higher operative mortality than a synthetic valve but if it decreases the need for a second operation, it may be used in preference to the prosthesis.

For patients with mitral insufficiency, annuloplasty associated with fracture of the mitral annulus without replacement of the valve is the indicated procedure whenever the local structures permit the operation to be done successfully. The silk sutures previously used were frequently associated with late rupture, but the use of synthetic suture of greater tensile strength has decreased the incidence of late postoperative rupture.

Surgery of the aortic valve has a much higher rate of mortality with closed valvulotomy than mitral valve surgery, although the introduction of the left heart bypass with coronary perfusion greatly decreased operative mortality. Since the aortic valve is more prone to calcification, valvulotomy for stenosis is often technically more difficult to perform without creating marked insufficiency so that replacement by valvular prosthesis is often necessary. The earliest prosthetic devices contained a silastic ball which has now been shown to develop the unfortunate complication of hysteresis as it wears out within a period of eighteen months in some patients. In the follow-up of patients with implanted valves, a change in the quality of the aortic sounds is often the first sign of hysteresis of the valve. Among the valves now available, those utilizing metal balls have the advantage of a longer life, but they also have the annoying disadvantage of producing a noise which is so loud that it can be heard without a stethoscope. The ten to fifteen per cent mortality rate associated with aortic surgery will hopefully decrease in coming years. Part of this high rate of mortality is related neither to the techniques nor the materials presently in use but to the underlying physiologic defect. In the patient with mitral stenosis, the left ventricle may not be able to accommodate the increased load of blood which occurs when the valve function is improved surgically and may therefore fail although the valve works well. In aortic insufficiency, the left ventricle has actually been handling an increased load and thus tolerates the repair somewhat better. On the other hand, small leaks around the aortic valve are especially prone to be associated with traumatic hemolytic anemia. Increased attention to careful suturing of the prosthetic ring has somewhat decreased the incidence of this anemia which is currently under more detailed study.

### Coronary Artery Disease

Numerous procedures for the correction of coronary artery occlusion have been proposed and discarded. Cardiac physiologists even question whether the symptoms of angina should be relieved at all since, in essence, angina is an alarm system which may warn against the onset of myocardial infarction. Isolated stenotic segments can be replaced by overlay vein implants although the technique is surgically difficult. It is associated with a significant operative mortality which may decrease as cardiopulmonary bypass is more frequently used. Microsuturing of the coronary artery is also possible when the heart is arrested. After some doubt about whether the Vineberg procedure is worthwhile, many of the skeptics have been convinced by more detailed study that the implanted artery can indeed stay patent. The newer angiographic techniques show that the physiology of cardiac vessels is unique and when the internal mammary artery is implanted in a myocardial tunnel, it does perfuse blood into the coronary venous system. In addition to the internal mammary implant, the Vineberg procedure includes pericardectomy and epicardial scarification with omental overlay.

Although at this time this procedure does seem to relieve angina in a significant number of patients, its ability to increase life expectancy is uncertain. The number of postoperative arteriograms which have been performed is relatively small, but the results are encouraging. The metabolic studies of lactate and other metabolic substances indicate a decrease in coronary sinus metabolites that have been attributed to an addition of arterial blood via the implanted artery. Whether the procedure supplies more blood to the metabolic function of the cells and increases the cardiac reserves, particularly to prevent the injury caused by progressive coronary artery occlusion, has not yet been determined since no adequate experiment has been devised to investigate these important questions. The evaluation of clinical experience is always slow and fraught with pitfalls so the Vineberg procedure remains one of the more controversial procedures in cardiac surgery. Fortunately, unless there is disease of all three coronary arteries, it is a procedure that can be done with little risk of mortality.

### Pacemakers

External pacing of the myocardium by an intracavitary ventricular electrode implanted via the jugular vein is now frequently performed. The life of the battery of pacing devices is fairly long and is continually being improved. The units in use include straight pacemakers and demand units which turn themselves off if the patient's rate exceeds the pacer's rate.

When a permanent implant is indicated, the technique presently used includes passage of a transvenous catheter for pacing and implantation of the pacemaker into an axillary pocket. The technical problems include breaking of the electrodes and depletion of the batteries which at the present time have a life of approximately eighteen months. Early battery failure is often presaged by an increase in the pacing rate which may produce the serious complication of ventricular tachycardia or fibrillation or complete failure of the unit with reversion to serve bradycardia.

### Summary

In the past decade, the indications for cardiovascular surgery have been clarified and the operative techniques have been improved. Further improvement in operative risk is likely, too, although it may not be as dramatic as the decline in risk from the first procedures performed.

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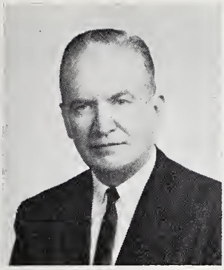
## BRAIN SCAN

George L. Jackson, M.D., *Harrisburg Hospital. American College of Physicians, Delaware Regional Meeting, February, 1968*

Since 1960 brain scan with radioactive mercury has been used to localize malignant brain tumors. Recent work utilizing radioautographs of tissue sections has demonstrated that the radioactivity appears in or on the neoplastic cells. It has also now been shown that the same localization of radioactivity will occur in other types of brain neoplasms such as benign meningiomas and metastatic brain tumors.



# President's Page

## PHYSICIANS VERSUS COST OF MEDICAL CARE

During the past eighteen months the problem of continuing rapid rise of medical costs has been discussed with increasing concern by a wide variety of agencies. The lay-public tends to place the responsibility for high cost of medical care directly on the doctors. The chief factors in these rising costs are charges made for hospitalization, laboratory tests, and x-rays, and bear little relation to physicians' fees for service. Even so, the physician has direct responsibility for ordering the expensive items in his patient's care. We must, therefore, eliminate or reduce all medical expenses when this can be done without detracting from the proper care of our patients.

In the busy schedule of many physicians unnecessary costs to patients are sometimes incurred for reason of convenience to the doctor, or the patient, or to save a little time. An example of this is the use of the hospital emergency room for patients who do not actually require emergency room treatment. The unwise use of this hospital facility burdens the patient with an avoidable extra hospital charge in addition to the physician's fee. The emergency room should not be used as a substitute for the doctor's office.

There are other hospital costs within our responsibility which physicians should not overlook. Have you noted how often some patients are admitted for days (or weeks?) to have x-ray examinations or laboratory tests which do not actually require hospitalization? This inflates without good cause the already high cost of hospital care. I repeatedly remind my residents that patients who are admitted to hospital from the outpatient clinic should have basic tests and studies before admission, and only those procedures which require hospitalization be done after admission. It is no longer tenable to admit a patient simply for a so-called "work-up" when this can be done through outpatient facilities. Another valid point was recently emphasized in an original contribution to JAMA which showed benefit to the patient and reduction of hospital charges by reducing the "usual" period of postoperative hospitalization.

A large number of our population are now covered in full or in part by insurance which provides sickness and hospital benefits. When patients have this form of financial protection the doctor is too often inclined to forget or disregard the importance of the economic aspects of the patient's medical care. Unwarranted overuse of hospital facilities results in rising premium rates which must be met by the consumer of services, your patient. If the costs of insurance continue to rise, what do you think will happen when the average person can no longer afford to pay the higher premiums?

It is the personal responsibility of every physician to see that his patients get the best hospital care at the lowest possible cost. We can meet our responsibilities better if we remain always aware of the avoidable costs which should not be permitted to burden our patients.

Daniel J. Preston

# Delaware Academy of General Practice

## THE GENERAL PRACTITIONER AND THE MEDICAL CENTER

William H. Duncan, M.D.

On March 5, 1968, Ernest C. Shortliffe, M.D., the Administrative Vice President of the Wilmington Medical Center, presented to the Department of General Practice his concepts and understanding of the role of the general practitioner in the Wilmington Medical Center. Doctor Shortliffe's presentation referred specifically to the state of mind which has been attributed to him in respect to the role of the general practitioner in the Wilmington Medical Center today and in the future. He stated that the many rumors rampant in the Center have disturbed him, especially when they are in reference to his feelings toward the general practitioner. He has been particularly disturbed because he was and still considers himself to be a general practitioner.

Doctor Shortliffe discussed the competence of the individual practitioner as being one of individual measurement not requiring the formalities of certification in a specific field. This competence of each individual practitioner would be measured. However, the general practitioner must be effectively integrated into a total medical staff organization. General practice is an arm of an important and frequently neglected section of the medical staff. Since it embraces every clinical department in the institution, general practitioners must have carefully delineated privileges in the clinical departments of their choosing.

He pointed out particularly that this delineation is not only a conviction of his, but the official position of the majority of hospitals and all the related professional associations in this country. This is in no way an expression of doubt of, nor can it be interpreted as indication of a lack of respect for, the competence of the general practitioner.

Doctor Shortliffe indicated that his real concern is the continued abdication of the medical staff of its clearly defined clinical responsibilities in emergency services in particular, but also in the outpatient and inpatient services as well.

As historical review of the burgeoning problems of emergency services within the nation for over 20 years has stated that in spite of continual discussions, plans, and programming, emergency departments remain "the weakest link in the chain of medical care." A corollary can be drawn with the fact that emergency services daily face situations that the average general practitioner also faces in his own office daily. Within the crowded waiting room of any practitioner a patient can appear who was not expected. The responsibility for seeing and caring for this patient becomes that of the individual physician and though it may be a source of some frustration, it is assumed a matter of course. But by the same token, if a busy practitioner in the midst of a busy office schedule is faced with an emergency situation of one of his patients who is at home or, for that matter, in a hospital emergency room, this same physician is faced with the necessity of establishing a priority. Either he must leave his office and see the patient, or he must be prepared to have someone else see him.

It has been customary for several years

*Continued on Page 195*

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Dr. Duncan is Treasurer of the Delaware Academy of General Practice and Director of Ambulatory Services, Wilmington Medical Center.

# Editorials

## INSULIN, ARGININE AND LOVE

### A Brief Review of Growth Hormone

The anterior pituitary gland, or adenohypophysis, hangs like a teardrop from the base of the brain. With its mate the posterior pituitary, or neurohypophysis, it is enclosed on the floor of the skull in a bony little cave, the sella turcica.

A concentrated polypeptide hormone factory, the anterior pituitary elaborates at the very least, ACTH (adrenocorticotropin, TSH (thyrotropin), FSH and LH (the gonadotropins), LTH (prolactin, the lactation hormone), and GH (growth hormone or somatropin)—certainly an elaborate array for an organ weighing only one half gram.

In the past few years, GH has assumed a position of new and major clinical and laboratory importance. Befitting its importance, it is a very large molecule; in 1966 Dr. Li in California succeeded in delineating its structure as one single chain of 188 amino acids. The development of a radioactive labeling method for growth hormone and of thin layer chromatographic techniques for hormone assays is enabling direct measurement of growth hormone and thus the demonstration of its presence or lack thereof in various clinical states. Furthermore, the therapeutic efficacy of human growth hormone extracted from human pituitaries obtained at autopsy, when administered to short children with failure of elaboration of their own growth hormone has resulted in enormous public interest among all those families perturbed by the problem of a child who is a dwarf.

Although many new facts about the elaboration of growth hormone (GH) in health and disease have been recently elucidated, much of the physiology and action of GH remains to be known and understood. The resting level in adult women is higher than in men; male levels can be raised by pretreatment with estrogen. Why should this be so? Women, by and large, are smaller not larger than men.

And, unfortunately, determination of GH in a single specimen tells little about the patient's normalcy with respect to the elaboration of GH under physiologic conditions calling for its secretion. At present the adequacy of GH secretion can best be evaluated by administration of insulin to the point of hypoglycemia, or by the intravenous infusion of certain amino acids such as arginine or lysine which in the normal patient cause release of GH. When blood sugar is dropped by insulin to less than 50% of fasting glucose value, GH will double or triple from its basal nigh unmeasurable levels unless there is patient inability to produce or release GH. Conversely, if blood sugar is raised by glucose infusion, baseline levels of GH high enough to suggest the possibility of acromegaly, the disease of excess GH, will not fall if acromegaly is indeed present.

The well-known stigmata of the full-blown acromegalic state serve as prototypic examples of many of the effects of excess GH, thus demonstrating how aptly it was first named somatropin. The bones thicken; ergo, the enlarged hands and feet. The teeth are separated for the jawbone has grown. Bone density is decreased; therefore, osteoporosis to the point of vertebral collapse occurs. The organs enlarge; there is cardiac hypertrophy. Diabetes appears. Unfortunately, although an acromegalic may seem clinically improved and the symptoms and signs of his disease arrested after pituitary ablation, be it by surgical extirpation, or cryogenic or radioactive coagulation with yttrium or gold, he will still have elevated titers of GH. If clinical improvement has been marked, the absolute levels of GH may be much diminished post hypophysectomy, but they are almost always still elevated indicating continued excessive secretion of GH despite improved clinical status.

Pituitary failure of GH elaboration may be an isolated pituitary deficiency with production of all of the other pituitary hormones perfectly normal. It is these children whose height may be increased to more socially desirable levels by administration of GH. But it requires the GH from several human pituitary glands to produce one week's dosage for a child, and therapy for maximum growth may need to be continued for a year or more. The choice of patients to receive the precious stuff is therefore correctly limited to those who are proven GH deficient by insulin and/or arginine infusion tests and whose anticipated height without therapy would be less than five feet. The decision whom to treat rests with a limited number of investigators approved by the National Pituitary Agency.

It has been recently shown that short stature may be a psychosomatic disease. "A child needs love to grow right," has turned out to be another grandmotherly adage with scientific substantiation. Powell and his colleagues at Johns Hopkins have demonstrated absent GH after both insulin and arginine stimulation in some short children with deprived emotional backgrounds. Despite enormous and often bizarre appetities—jars of mustard, slurps of toilet bowl water—these children were growth failures. With the substitution of a better environment and the addition of loving care and solicitude, their ability to liberate GH after insulin or arginine infusion was restored and concomitantly, they began to grow taller.

What if GH is administered to a short but normal child? If the child is really normal, by genetic destiny a cocker spaniel instead of a St. Bernard, his normal height potential will probably not be exceeded even if large doses of GH are administered. Experiments of this type have been limited because of the present necessity of restricting the administration of the very limited supply of human GH to those children with proven GH deficiency, and because administration of GH to the child who is actually making some may not be without risk. There is now evidence that the injection of present preparations of human GH may induce an antigenic response with subsequent and continued inactivation of the patient's own GH.

Much remains to be known about the role of GH in the endocrine homeostasis of the adult. In the full grown adult, concentrations of GH are not significantly different by present assay techniques than they are in the growing child. Nor are levels greater in tall basketball players than in humans of more average height. The data about this fascinating hormone which is currently being accumulated in many centers will undoubtedly be expanded in the next few years. There will probably be much new to learn.

B.Z.P.

## Mechanization and Medicine

There are those who admit to reservations about our increasing dependence in medicine on mechanization. Fears of impersonalization or of machines becoming the masters are not infrequent. Some of this reservation is understandable as part of the natural conservatism of those in medicine towards things new and radical, an attitude which has over the years proved in many instances one of the practicing physician's most valuable characteristics.

Alvin Feinberg, cardiologist and scholar, has this amusing analysis of the reactions of today's clinicians in these paragraphs from his new book *Clinical Judgement.*

"A clinician today often eats a breakfast that was stored in a refrigerator and cooked on an electric stove; he drives his automobile to a multi-storied building, where he takes a self-service elevator to his office; he checks the telephoned reports of results obtained via x-ray, electrocardiograph, or spectrophotometer; he looks at his television set and sees pictures sent instantaneously via artificial satellite from the other side of the earth; he then takes the microphone of his dictation equipment and composes a letter that will be transcribed with the aid of an electric typewriter. In the letter, he deplores the destruction of human values by technology.

"Confronted with the problems of technology, people have always reacted incongruously, condemning the abuses of the mechanism whose products they happily use. From the most ancient civilizations to the modern, the recorded attitudes about the ethical consequences of technologic advance indicate that man has been alarmed but assimilating, concerned but consuming. The very media of mass communication made possible by technology — the printed page, the broadcast voice, the transmitted image — have often been employed to denounce its dehumanizing effects."

Dr. Feinberg warns that if history repeats as it has always done, we may expect some problems as well as 3000 tests per day from our new autoanalysing machines.

"No era in recorded history and no valuable new technologic device has been spared the problem of acceptance and abuse in man's long struggle to live with the artifacts he creates. The human invention of the spear, so important in hunting animals for food, was followed by its use as a weapon for killing other humans. The discovery of fire, so effective for heat and light, was later applied to torture people."

But as King Canute found when he commanded the tide to stay, it is not likely to make any difference for us merely to protest that we do not like our times.

B.Z.P.

## DELAWARE ACADEMY OF GENERAL PRACTICE

*Continued from Page 192*

for the Wilmington Medical Center to employ physicians to see these patients, that is to say, to see the patients of private doctors in the emergency departments. These employed physicians have been limited in their working hours, in their licensure, and to a very rigid understanding that "they must not interfere with the relationship of the private patient and his doctor." Doctor Shortliffe's emphatic opinion is that such a system does not and will not work. If a hospital employs physicians to deliver these services, the hospital will have to inject itself into the private practice of medicine in the emergency facilities. There appears to be no alternative.

In concluding, Doctor Shortliffe reviewed proposals submitted by the Department of General Practice of the Wilmington Medical Center over the last eighteen months and reiterated that a non-clinical department cannot supervise medical care. He indicated that he shared with all those present at the meeting, with the community, and with the medical staff, the dilemma, frustration, and apprehension felt in regard to the disappearance of the general practitioner. But the real fact of the matter is that the entire pattern for the delivery of medical services is changing and the forces behind these changes are dictated by social and economic forces which are quite beyond the control of hospitals or physicians. A closer relationship of practitioners of all types to the practice of medicine within the hospital environment is as inevitable as Medicaid and Medicare. A united effort is needed by all concerned if hospitals and physicians are not to be dictated to by government statutes.

## DOCTORS IN PRACTICE

At the end of 1966 there were 300,375 physicians in the United States or serving overseas with the armed forces. Of this number, 13,212 were inactive (retired or out of practice for other reasons). According to the American Medical Association 22,457 of these physicians were 70 and over, and of this group 13,805 were still active in the practice of medicine. (American College of Physicians Bulletin; Dec., 1967.)

# In Brief

## The Month in Washington

### X-Ray Scares

The American College of Radiology has criticized published scare stores for causing unwarranted fears of x-ray examination. One article in a recent issue of the *Ladies Home Journal* distorted the facts thereby scaring people as to the possible effects of being x-rayed. A spokesman said, "Diagnostic x-ray examinations do not endanger the health of patients despite a few shrill claims to the contrary. We could cite millions of instances where x-ray examinations provide life-saving information to patients . . . The real tragedy occurs when even one person may be misled by a distortion of radiation hazards to refuse a needed diagnostic x-ray examination."

### "New" Drugs

The FDA has proposed new regulations for the classification of drugs found both safe and effective for their labeled uses. The new procedures would open the way to allow firms to market drugs reclassified as "not new" or "no longer new" without submitting and awaiting approval of new drug applications (NDA) by the FDA. Under the terms of the Food, Drug and Cosmetic Act, any medicine with an NDA approval can remain in this "new drug" category regardless of how long it has been on the market.

### Medicaid

HEW Secretary Wilbur Cohen estimated that the medicaid program may cost the federal government between $2.5 and $3 billion in the fiscal year 1971. The estimate for the next fiscal year (1968) is $2.1 billion. The original estimate for the current year was $1.7 billion but that proved substantially low and the administration has asked for $500 million more. Secretary Cohen stated that HEW was very much concerned and was making an intensive investigation of reported abuses by some physicians in federal medical programs. He added that a number of allegations had been made but that an overall statement would not be made until the investigation was completed.

## New Label Warning

The new warning about the use of the antibiotic chloramphenicol was sent out May 9 to the nation's 306,000 physicians and hospital administrators. The journals have been asked by the HEW to again bring these labeling changes to the attention of physicians. The revised labeling suggests that patients be hospitalized during treatment with chloramphenicol. It also includes cautionary information regarding the use of the drug in pregnancy and lactation and adds leukemia to the previously listed adverse reactions. Also made a part of the new labeling is an estimate of the incidence of chloramphenicol-caused fatal aplastic anemia based on the 1967 report by the California Medical Association and State Department of Public Health. Physicians are also asked to report to the FDA any reactions associated with the use of chloramphenicol. Such reports will be regularly evaluated to determine whether further action is necessary to curb the excessive use of this drug.

### In The News

At the commencement exercises at the Brandywine Junior College, John M. Levinson, M.D., received a Brandywine Award for his outstanding contribution to the field of international medicine. Dr. Levinson was also cited for his voluntary medical tours in South Vietnam in 1963, 1964, 1966 and 1967 as well as service in Tunisia in 1965.

Allston Jesse Morris, son of Allston J. Morris, M.D., was one of the six students honored by the Claymont Lions Club in recognition of outstanding qualities. The students received $50 bonds. These awards are called *Teen-Ager of the Year.*

William T. Reardon, M.D., addressed the following groups during the month of May: May 8 — Luncheon speaker in Newark, N. J., before the N. J. Life Insurance Underwriters on the subject, *How to Combat Stress with Antogenic Training;* May 15 — Luncheon of West End Rotary Club held at Columbus Inn, subject, *Use and Value of Hypnosis In Business;* May 20 — PTA meeting of Richardson Park Elementary School subject, *How Your Child Can Be Helped with Relaxation;* May 24 — Guest speaker at the Instituto Psicologico De Puerto Rico, lecture, *Demonstration of Group Psychotherapy.*

The Wilmington Medical Center has opened an experimental Methadon Clinic for the treatment of heroin addicts. It is under the direction of William J. Vandervort, M.D., and has the backing of the State Departments of Correction and Mental Health and the approval of Atty. Gen. David P. Buckson and the U. S. Bureau of Narcotics.

The clinic was opened late in April and two weeks after its start ten patients were under treatment and new ones were being added at the rate of one or two a week. Among those was the first Delawarean to receive probation instead of jail after conviction of drug addiction. Dr. Vandervort has been invited to go to the Rockefeller University in New York, June 21, to report on the program.

### New Officers

At a recent meeting of Radiologic Society of Delaware, state chapter of the American College of Radiology, the following officers were elected: President — McHenry Peters, M.D.; Vice-President — Harold Wilberg, M.D.; Secretary-Treasurer — James H. Taylor, M.D.; Counselor — S. Thomas Miller, M.D., (for two years); Alternate Counselor — Eugene McNinch, M.D., (for one year).

### Normal (Whole Pooled) Human Plasma

The AMA Committee on Blood has released a statement following a recent study concerning the risk of hepatitis in using pooled plasma from large numbers of donors, prepared by irradiation and stored at 30-32 C for six months.

"The use of whole pooled human plasma be discouraged and even discontinued unless a clearcut case can be made for its unique requirements." In the opinion of the Committee on Blood, this type of pooled plasma appears to carry a higher risk than was indicated by previous publications. The relative risk of plasma prepared from smaller donor pools and stored for longer periods or at higher temperatures was not investigated in this study. The Committee notes that alternatives to the use of pool plasma are available in single donor and serum albumin. In acute requirements, the risk from any pool must be evaluated against the compelling needs for its use.

### Speakers On "Ask the Doctor"

Speakers for July, 1968, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: July 2, Gordon J. Keppel, M.D., *Your Son or Daughter in College;* July 9, Robert L. Meckelnburg, M.D., *Radioactive Materials and Their Use in Diagnosis and Treatment of Medicine;* July 16, Pierre L. LeRoy, M.D., *Summer Tragedies;* July 23, Thomas R. Brooks, M.D., *Sex Education;* July 30, C. Anthony D'Alonzo, M.D., *Alcoholism.*

### NIH News

Fundamental and applied research by National Institutes of Health scientists on thyrocalcitonin, a thyroid hormone recently discovered in several animal species, has:

- provided the first chemical definition of the hormone's structure that has just led to synthesis of the hormone by Swiss researchers;
- provided a sensitive method of measuring the normally minute amounts of hormone circulating in the blood;
- established through the assay method, the hormone's physiological importance in bone and mineral metabolism; and
- demonstrated that the purified hormone, administered to patients suffering from high blood calcium levels and bone demineralization, produces rapid and beneficial results.

### Speakers for the American Cancer Society

*Smoking and Health* was the topic discussed by Daniel J. Preston, M.D., addressing Boy Scout Troop #397 on April 15 and George Boines, M.D., addressing a group of students at the Pilot School, May 9.

James M. Hofford, M.D., addressed Delaware Scholastic Press Association Convention at Rehoboth, May 11, on *Your Health and Smoking.* Dr. Hofford is the representative of the Medical Society of Delaware on the Interagency Council on Smoking and Health.

Drs. Barbara Rose and Charles Riegel participated in a program for the Community Services Council, AFL-CIO on May 1. Dr. Rose addressed the women's group on "Health Facts for Women" and Dr. Riegel's remarks were directed to the men's group on respective information.

Dr. Carlo Cuccia was the guest speaker for the Annual Meeting of the Sussex County Unit of the American Cancer Society on May 14, held at the Seaford Golf and Country Club. He traced the history of radiation therapy from its beginning to the sophisticated equipment now in use in modern medical centers.

Dr. Richardson B. Glidden served as program chairman for the Annual Meeting of the Kent County Unit of the Society on May 15.

### Personal Glimpses

Katherine L. Esterly, M.D., has been named a Head Start consultant by the American Academy of Pediatrics . . . Robert L. Meckelnburg, M.D., was elected president of the New Castle County unit of the American Cancer Society; Thomas R. Brooks, M.D., was made a vice-president John E. Benzel, M.D., was elected to the 14-member executive committee; Drs. Marvin Anderson, Jason L. Campbell, and Barbara B. Rose were elected to two-year terms on the board of directors . . .

# The Physician and The Pharmacist

*A monthly feature of the Delaware Pharmaceutical Society*

## DRUG ABSTRACTS

### ANTICOAGULANTS

**Drug Interactions**

The list of drugs which influence the anticoagulant activity of coumarins is growing. The following tabulation may be helpful even though it is undoubtedly incomplete. It should be noted that the mechanism by which various agents increase or decrease the activity of coumarin anticoagulants is not necessarily the same.

### COUMARIN ANTICOAGULANTS

**Action of Coumarin Anticoagulants**

*Decreased by*:

- barbiturates — phenobarbital, Amytal, Seconal
- chloral hydrate
- Doriden
- griseofulvin
- meprobamate

Placidyl

*Increased* anticoagulant dosage required for therapeutic effect.
*Decreased* anticoagulant dosage required when above drugs are withdrawn.
*Decreased* prothrombin time.

*Increased* by:

- anabolic steroids
- antibiotics, broad spectrum
- Analexin
- Atromid S
- Butazolidin, Tandearil
- Dilantin
- methylthiouracil
- quinidine, quinine
- radioactive compounds and x-ray
- salicylates
- d-thyroxine

Hemorrhage may occur if above drugs are added to stabilized anticoagulant regimen.
*Increased* prothrombin time.

### EPINEPHRINE

**Intragluteal Injection — Gas Gangrene**

Death from overwhelming infection resulting from a therapeutic injection is not an occurrence to be publicized but a few clinicians, including the present authors, have had the courage to publish such reports. A 22-year-old man was admitted to hospital with severe status asthmaticus. Treatment included the intravenous administration of aminophylline and intragluteal injection of hyperduric adrenaline (a slow-release epinephrine preparation). The patient improved temporarily but by the third day he was obviously very ill. A diffuse swelling was present over the right buttock and upper third of the right thigh. Palpation revealed obvious crepitus. Gas Gangrene infection was diagnosed and appropriate treatment begun but the patient died within a few hours. Necropsy findings were those of classic gas gangrene infection which appeared to have arisen from a needle tract 2 inches long in the right buttock. The source of the infection was probably the skin. (Cl. welchii is a normal inhabitant of the bowel, and intestinal bacteria have a much wider skin distribution around the anus than is generally recognized.) The vasoconstriction induced by the epinephrine could have lowered the oxygen tension to a point which enabled the the anaerobic organisms, introduced via the needle, to grow. The lesson to be learned here is that epinephrine should *never* be given in the buttock.

Harvey, P. W. and Purnell, G. V. Royal Lancaster Inf., Lancaster, Eng. (Dr. Harvey), British M. J. 1:744, Mar. 23, 1968.

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*This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

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Delaware
Medical Journal

JULY, 1968
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# MYCOPLASMA PNEUMONIA

## A Case Report

**More effort should be made to identify the etiologic agent in patients with pulmonary infection. To this end the Delaware Tuberculosis and Health Society has established a mycoplasma laboratory at the Wilmington Medical Center. The case reported herein has been confirmed by this laboratory.**

L. B. Hogan, M.D.
B. L. Weisman, M.D.
W. J. Holloway, M.D.

About 1940, a broad group of non-bacterial pneumonias was first recognized and given the name primary atypical pneumonia. The etiologic agent or agents was unknown at that time. In 1943 it was noted that cold agglutinins developed during the course of the illness in the blood of many patients with primary atypical pneumonia. It has been subsequently established that atypical pneumonia is a syndrome of many etiologies including adenovirus and influenza A and B viruses. Viral agents, however, were not implicated in the pneumonia characterized by a cold aggultinin response. During and after the Second World War, it became known that cold-agglutinin-positive atypical pneumonia was a distinct epidemiologic entity with an average incubation period of two weeks. During 1944, the Eaton agent was isolated and found to be in the respiratory tract of patients with atypical pneumonia; subsequent studies have confirmed this relationship.[1,2]

The Eaton agent was considered to be a virus for a number of years, but this concept became doubtful when it was observed that the organism could be inhibited by tetracycline and chloramphenicol in vitro.[3] The first suggestion that the Eaton agent might be a mycoplasma was made in 1961 by Marmion and Goodburn.[4] In 1962, Chanock and his associates clearly demonstrated that the agent of cold-agglutinin-positive primary atypical pneumonia was not a virus, but a mycoplasma. They succeeded in cultivating the organism on artificial media.[5,6]

In 1963, the name *Mycoplasma pneumonia* was proposed for the organism responsible for primary atypical cold-agglutinin-positive pneumonia.[7] This organism was found to be separate and distinct from the original 4 prototype species. At the present time, *M. pneumoniae* is the only species of mycoplasma definitely known to produce disease in man.[8,9]

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Dr. Hogan is Chief Resident in Medicine; Dr. Weisman is Assistant in General Practice; and Dr. Holloway is Director, Infectious Disease Research Laboratory, Wilmington Medical Center, Wilmington, Delaware.

Recovery of the Eaton agent is most often accomplished during the early phase of the illness and from patients in whom cold agglutinins have developed. Immunofluorescent studies have provided serologic confirmation that cold-agglutinin-positive patients with primary atypical pneumonia were infected with the Eaton agent.[10] Controlled epidemiologic investigations of naturally occurring disease during the last five years have provided convincing evidence that the Eaton agent is a human respiratory pathogen.[11,12]

Final proof of the Eaton agent producing respiratory disease in man came from a series of volunteer studies conducted by Chanock and others.[13,14] Eighteen of 69 volunteers demonstrating no fluorescent-stainable antibody in their acute phase serum developed a febrile illness with or without pneumonia after infection with *M. pneumoniae*. Most of these developed cold-agglutinins. Volunteers with naturally acquired fluorescent antibodies did not develop a febrile illness when challenged with the same organism.[13]

It has been reported that infection from *M. pneumoniae* ranges from inapparent infection to mild upper respiratory disease to bronchopneumonia. The organism may persist in the throat of the convalescent patient for a prolonged period of time in spite of the presence of high levels of serum antibody. In one study of four patients, the organism was recovered 20 to 45 days after the onset of clinical symptoms. In those patients having previous antibody response with subsequent reinfection, the organisms were recovered for shorter periods of time.

### Case Report

*History:* A 19-year-old woman was admitted to the hospital with a ten-day history of chills, fever and cough. Prior to the onset of her present illness, she had been in good health.

Eight days before admission, the patient was seen by her physician and at that time, physical examination revealed no abnormalities. Because of a two-day history of chills, fever and cough she was given a course of oral penicillin and seen by her physician eight days later. She was still febrile and complained of chills, fever, cough and earache. Physical examination revealed bilateral rales and she was admitted to the hospital with a diagnosis of pneumonia.

The past medical history, review of systems, and family history were unremarkable. It was noted that she had no history of allergy to any medications. Social history was of interest in that she was a hairdresser and as such, was with constant exposure to hair spray, although she stated that this had never bothered her previously. She smoked approximately one pack of cigarettes daily and denied any exposure to tuberculosis or recent exposure to animals or fowl.

*Physical examination:* Admission examination revealed the patient to be an acutely ill, pale young woman. Temperature was 98.0 F; pulse, 104 per minute; and respirations, 24 per minute. The right eardrum was slightly injected; there were no other ENT lesions noted. There was no lymphadenopathy. Auscultation of the lungs revealed inspiratory rales at the right base and inspiratory rales and diminished breath sounds at the left posterior base. There were no other pulmonary findings. Examination of the heart revealed a mild sinus tachycardia and no murmurs. The examination of the abdomen was unremarkable, as was the remainder of the physical examination. Chest x-ray revealed bilateral pneumonitis (Figure 1).

*Laboratory data:* Admission white blood count was 7,100 cells/mm$^3$ (segmented neutrophils, 60%; non-segmented neutrophils 15%; lymphocytes, 11%; monocytes, 13%; and eosinophils, 1%) and hemoglobin was 11.4 gm. Cold-agglutinin titer was 1:64 on admission and rose to 1:256 by the time of discharge; mycoplasma complement fixation titer was 1:128 and streptococcus MG titer was 1:256. *Mycoplasma pneumoniae* was isolated from the pharyngeal culture.

*Clinical course:* The patient was placed on erythromycin, 250 mg every 6 hours orally. On this regimen, she showed progressive clinical improvement. After 6 days therapy, she was discharged and maintained on the

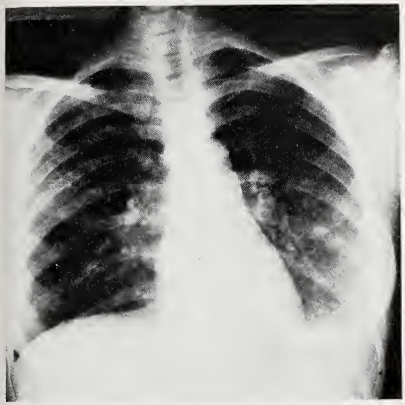

Figure 1

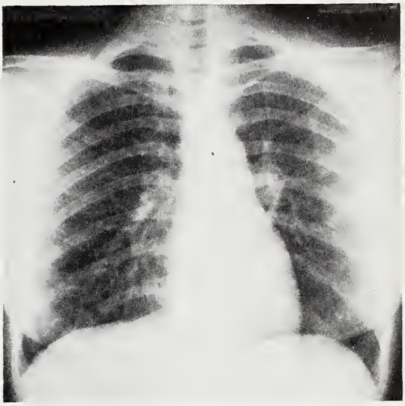

Figure 2

same drug dose at home for another week, at which time chest x-ray showed complete resolution of her bilateral pneumonia (Figure 2).

**Epidemiology**

Mycoplasma infections occur throughout the year, with the peak activity usually occurring during the fall and early winter. Spread appears to be quite slow in the general population occurring usually within the family unit or within a similar epidemiologic unit rather than by casual contact. The training of military recruits appears to offer one type of environment favoring dissemination of *M. pneumoniae*.[12,15]

Mycoplasma pneumonia has characteristically demonstrated a cyclic occurrence. During the years 1959 to 1966, *M. pneumoniae* was found in 38% of 1369 pneumonias occurring in East Coast Marines.[15] In 1959, 67% of the Marine recruits at Paris Island, South Carolina, had serologic evidence of infection by *M. pneumoniae*. This decreased over the subsequent years to 7% in 1963. This could not be correlated with any change in population size, method of recruitment or physical environment.

During the years 1957 to 1959, 10% of the lower respiratory illnesses in the pediatric patients at Children's Hospital in Washington, D. C., were associated with *M. pneumoniae* infection.[16] During the period of 1962 to 1964, only 1% of this population had mycoplasma pneumonia.

Chanock, in describing a study at Camp Le Jeune, North Carolina, found *Mycoplasma pneumoniae* an important cause of lower respiratory disease during the years 1959 to 1966.[15] He used as his epidemiologic unit the platoon, a training group of 70 to 80 men. In different platoons, the extent and rate of spread of infection was found to vary considerably; the organisms spread slowly within each platoon, but even more slowly between platoons. Whole platoons had escaped infection with *M. pneumoniae* at Paris Island and then had developed infection when transferred to Camp Le Jeune. Infection was detected most often in those who had the least amount of growth-inhibiting antibody at the beginning. The protective effect of the antibody was relative, not absolute, since reinfection did occur; however, a high antibody response usually meant a high degree of immunity.

Prison populations provide another very suitable environment; 87% of federal prisoners were found to have a fluorescent stainable antibody in a 1964 study.

Studies at the University of Wisconsin suggest that college populations may also offer similar epidemiologic conditions.[17] During an eight-year study, 22% of all students with pneumonia at this institution had mycoplasma antibody present.

Studies have also shown civilian populations to be comparably involved.[18] A study in Seattle recently disclosed isolation of *M. pneumoniae* from 20% of 215 patients with a diagnosis of non-bacterial pneumonia.

While all age groups are effected, the majority of those with mycoplasma pneumonia have either been in their childhood or in the second or third decade. In family outbreaks, adults are more severely inflicted than in children under five years of age; children in this age group commonly experience asymptomatic infection. When family outbreaks do occur, they are usually quite protracted and usually occur in homes where there are school age children. Secondary infection in such families is frequently high. In another study carried out in Seattle, 39% of 151 family contacts of *M. pneumoniae* positive pneumonia cases in 36 families demonstrated evidence of infection.[19]

At the Wilmington Medical Center, *Mycoplasma pneumoniae* was isolated from nine patients with pneumonia during the period from August, 1966, to March, 1968. Of the 373 patients with pneumonia studied during this period, 63 (16.9%) either had positive cultures for *M. pneumoniae*, positive mycoplasma complement fixation titers, positive cold-agglutinin response or some combination of these parameters.

### Treatment

Chlortetracycline was the first antibotic used successfully in the treatment of mycoplasma pneumonia.[20,21] Subsequently the remainder of the tetracyclines were found to be effective against this organism. Other antibiotics were tested for their efficacy in treatment of pneumonia caused by *M. pneumoniae;* chloramphenicol was found to be somewhat effective but on a weight basis· much less so than tetracycline. Streptomycin was found to be of questionable benefit while penicillin and the sulfonamides were generally conceded to have no effect on primary atypical pneumonia.[22]

In order to ascertain the merit of tetracycline· a controlled study was carried out in 109 patients with documented mycoplasma pneumonia;[23] half of these received demethychlortetracycline and the other half a placebo. In the group treated with the tetracycline the duration of fever was shortened· radiographic clearing was hastened the persistence of rales was shortened and clinical recovery occurred more rapidly.

To determine the efficacy of erythromycin as compared to tetracycline in the treatment of Eaton agent pneumonia a study was carried out in a group of military trainees and university students.[24] One hundred and five patients with pneumonia secondary to *M. pneumoniae* were treated; 49 were given tetracycline and 56 erythromycin. The usual daily dose of either drug was 1.5 gm for a total of 6 to 8 days. The mean time for x-ray clearing in the group treated with erythromycin was 5.5 days and 7.9 days for those receiving tetracycline. No other significant differences in the clinical course was noted.

Currently, one may choose either erythromycin or tetracycline in a total daily dose of 1.0 to 1.5 gm in the treatment of mycoplasma pneumonia. Because of the low rate of morbidity and mortality, most authorities agree that the majority of cases do not need therapy and that it should be reserved for patients with prolonged or serious disease.

### Summary and Discussion

A case of mycoplasma pneumonia seen recently in Wilmington has been presented. Also noted were eight other cases from which *M. pneumoniae* was isolated at the Wilmington Medical Center; these occurred during the past 18 months. The importance of this organism as an etiological agent of pneumonia is called to the attention of local physicians.

The literature on this subject has been reviewed, including many of the historical aspects of mycoplasma pneumonia. The epidemiology of this illness has been discussed and several studies cited.

Current concepts in treatment have been discussed and recommendations have been made concerning the therapy of mycoplasma pneumonia.

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## EMERGING PATTERNS IN MEDICAL EDUCATION

"Medicine and medical education have thrived on their foundation of autonomy and self-direction, as properly befits a profession with a distinguished heritage and a modern academic base. Yet, total expenditures for health care are now approaching $50,000,000,000 annually, exclusive of the costs of medical education. This means the public is spending $137,000,000 daily on medical care. Because of its costly diagnostic and therapeutic armamentarium, because of its degree of specialization, and because of the shared financing, medicine, as an academic field and a practicing profession, must now respond to the social and market pressures that operate on any giant industry.

"A radical social contract has been forged in the past two years. It binds the profession, the government, the university, and the medical school in a new partnership. The degrees of freedom that medicine can reasonably expect to retain under this merger are obviously far less than heritage and tradition would lead us to want and expect." (*Emerging Patterns in Medical Education*, Paul J. Sanazaro, M.D., Director of Education, Association of American Medical Colleges. Mayo Clinic Proceedings, p. 779, Dec. 1967.)

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From 1950 to 1965, the number of U.S. physicians rose from 233,000 to 305,000. For the past two years, the Boston Globe has reported that all the graduates of the 1966 and 1967 classes — some 600 in all — of Harvard, Tufts, and Boston University medical schools are going to be specialists.

# OPEN HEART SURGERY

## Results of 100 Operations*

• This report includes a number of patients from Delaware and adjacent areas who were treated at the Wilmington VA Hospital and later referred to the Philadelphia VA Hospital for heart surgery.

John P. Brennan, M.D.
L. Theodore Lawrence, M.D.

During the past few years open heart surgery has gained favor largely through reports from centers such as the Mayo Clinic and the National Heart Institute where large numbers of patients are cared for under ideal conditions. As a result about 700 hospitals in this country have developed open heart surgery programs. In many of these the case load is very small. Lillehei[1] has discouraged this trend saying that no hospital can maintain a proficient team with less than about two operations a week.

The experience being reported is that of a hospital with a minimum patient load. There have been countless pitfalls and difficulties but we feel that the results are similar to those reported in larger series and that the program has improved the diagnostic and therapeutic acumen of our staff. At the same time our patients have benefited from the convenience of the facilities.

### Patients and Methods

The operations to be discussed were the first 100 at the Philadelphia Veterans Administration Hospital and were fairly evenly distributed over a five year period (Table 1). The surgery was performed by a varying team of Veterans Administration and consultant surgeons. The surgical details will not be discussed in this report. Most of the patients had aortic or mitral lesions and were in Functional Class 3; rarely Class 4. Most had been in congestive failure and were thought to have a poor prognosis without surgery.

The early cases were largely evaluated clinically, the later ones had right and left heart catheterization in most instances.

Because of the small numbers involved, percentages are not very significant; however, it is noted that the early mortality (the deaths directly related to surgery) of about 20 to 30 per cent is similar to that reported by others.

### Mitral Operations

Table 2 shows the types of operation performed on the mitral valve. Open commissurotomy was the commonest procedure and proved to be low in risk, probably because the cardiopulmonary bypass time was short. The other procedures often required two to three hours of bypass time and the complications which developed were probably more related to prolonged bypass than to the particular lesion being treated.

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*Presented at the Regional Meeting, American College of Physicians, Wilmington, Delaware, February 24, 1968.

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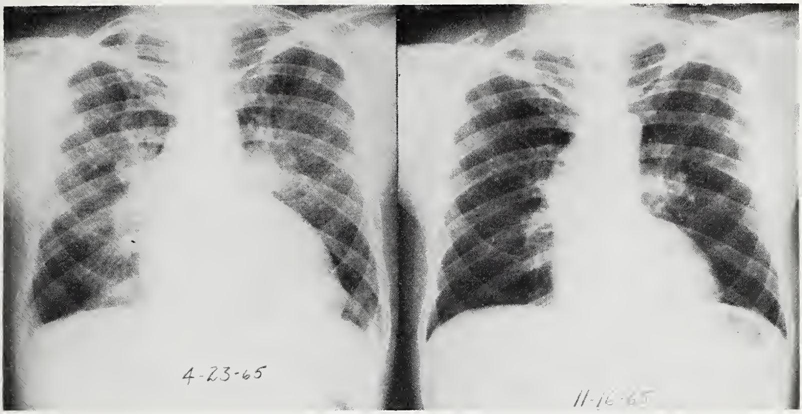

Figure 1. Aortic insufficiency followed bacterial endocarditis. It was treated by Starr-Edwards valve insertion.

Miscellaneous procedures included several attempts at plastic repair of the mitral valve. These were usually unsatisfactory and in the latter part of the series value replacement was favored. The figures in Table 2 include a few cases in which procedures were done on both the aortic and mitral valves. Triple valve replacement was attempted in only one case and it was unsuccessful.

For comparison it is noted that the overall mortality (early and late) for isolated mitral valve replacement has been 24% in Morrow's experience,[2] and 28% in Starr's.[3]

### Aortic Operations

Table 3 shows figures for operations that involved primarily the aortic valve. Stenosis was the commonest lesion. Plastic procedures, including debridement and commissurotomy, were not very satisfactory and two patients who had this had valve replacement later with good results.

Reports from others[4] have shown an overall mortality in aortic replacement of ten to forty per cent.

**TABLE 1**

OPEN HEART SURGERY OPERATIONS
Philadelphia V.A. Hospital

| Year ending June 30 | Number | Early Deaths | Late Deaths |
|---|---|---|---|
| 1963 | 12 | 3 | 2 |
| 1964 | 22 | 4 | 1 |
| 1965 | 26 | 3 | 7 |
| 1966 | 23 | 6 | 1 |
| 1967 | 20 | 5 | 2 |

**TABLE 2**

MITRAL OPERATIONS

| | Number | Previous Operations | Mortality Early | Mortality Late |
|---|---|---|---|---|
| Open Commissurotomy | 25 | 3 | 1 | 1 |
| Replacement — Stenosis | 7 | 4 | 1 | 1 |
| Replacement — Insufficiency | 5 | 0 | 2 | 0 |
| Replacement — M.S. & M.I. | 9 | 1 | 0 | 2 |
| Miscellaneous | 10 | 5 | 5 | 1 |

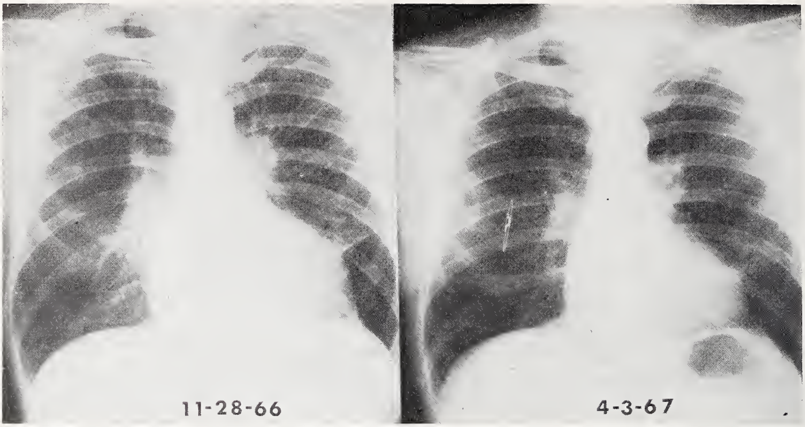

Figure 2. Definite decrease in heart size after replacement of the aortic and mitral valves.

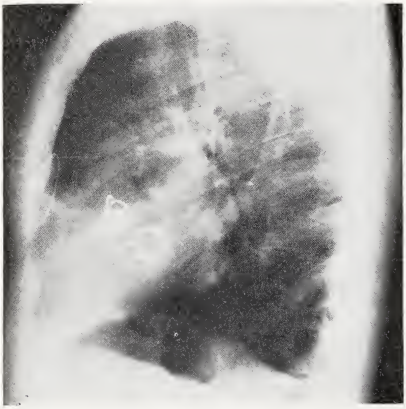

Figure 3. A lateral view shows the appearance of Starr-Edwards aortic and mitral valves.

**Other Operations**

Table 4 shows non-valvular lesions which were treated. Atrial septal defect is the commonest major congenital cardiac defect found among veterans, probably because it permits enlistment into military service as there may be no striking symptoms or signs. Our two

TABLE 3

Aortic Operations

| | Number | Previous Operation | Mortality Early | Mortality Late |
|---|---|---|---|---|
| Replacement — Stenosis | 20 | 2 | 4 | 3 |
| Replacement — Insufficiency | 12 | 1 | 1 | 3 |
| Miscellaneous | 9 | 1 | 1 | 2 |

TABLE 4

Miscellaneous Operations

| | | Mortality | |
|---|---|---|---|
| | Number | Early | Late |
| Atrial Septal Defect | 2 | 0 | 0 |
| Dissecting Aneurysm | 4 | 4 | — |

TABLE 5

Early Post-Op Complications

| | |
|---|---|
| Ventricular Fibrillation | 2 |
| Other Arrhythmias | 25 |
| Congestive Failure | 10 |
| Low Output | 8 |
| Peripheral Embolism | 7 |
| Renal Failure | 5 |
| Pneumonia | 5 |
| Psychosis | 4 |
| Pulmonary Embolism | 3 |
| Ventricular conduction defect | 3 |
| Hemolysis | 2 |

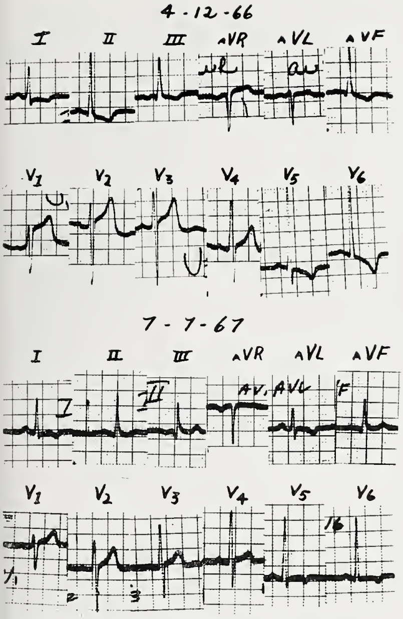

Figure 4. Signs of left ventricular hypertrophy have subsided after aortic valve replacement for stenosis.

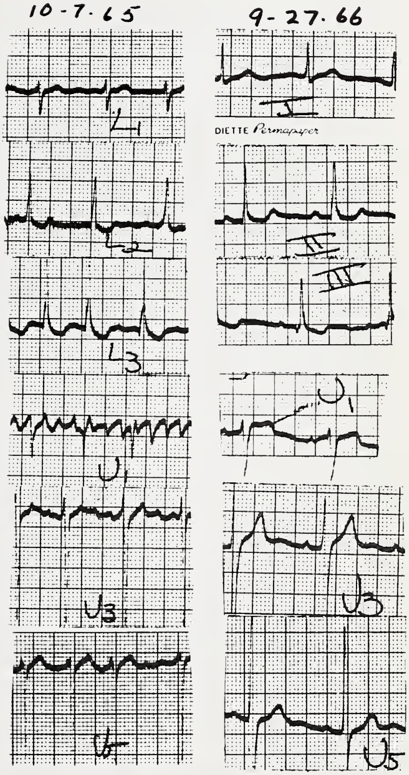

Figure 5. EKG improvement after treatment of mitral insufficiency by valve replacement. Signs of right ventricular hypertrophy disappeared and the rhythm changed from atrial fibrillation to normal.

patients were operated upon without serious difficulty.

Dissecting aneurysm proved to be a treacherous lesion as no patients survived surgery. Two were operated upon as emergencies. One was diagnosed as an incidental finding in a case of aortic stenosis. This combination of lesions has only rarely been reported in the past.

### Early Complications

Table 5 lists the more serious complications of the early postoperative period.

Arrhythmias were often worrisome and included atrial fibrillation and flutter, paroxysmal atrial tachycardia, and complete heart block. Usually these could be controlled by adjusting the dose of digitalis and correcting any electrolyte abnormality that might be present (usually hypokalemia).

Cerebral embolism, probably air embolism, occurred in several cases and marred results that would have been good otherwise. In some cases patients adjusted well to a persistent hemiparesis. Post operative psychosis is a well known complication. Our four patients recovered with time and sedation.

**TABLE 6**

PRE-OP PULMONARY HYPERTENSION

| | Mitral | Aortic |
|---|---|---|
| Over 50 systolic | 12 | 4 |
| Died early | 3 | 1 |
| Under 50 systolic | 10 | 13 |
| Died early | 0 | 0 |

**TABLE 7**

PROSTHETIC VALVES

| Post-Op Heart Size | Mitral | Aortic |
|---|---|---|
| Smaller | 9 | 18 |
| Unchanged | 6 | 4 |
| Larger | 3 | 0 |

**TABLE 8**

EKG CHANGE WITH PROSTHETIC VALVES

| | Mitral | Aortic |
|---|---|---|
| Less LVH | 2 | 9 |
| More LVH | 1 | 0 |
| Less RVH | 5 | 0 |
| Total No. Evaluated | 17 | 21 |

Three patients developed a transient or persistent left bundle branch block which seemed to attest to the myocardial damage that can be expected with bypass procedures.

### Pulmonary Hypertension

Table 6 shows the outcome in patients who had preoperative right heart catheterization. Our small group illustrates the well known fact that severe pulmonary hypertension indicates an increased surgical risk. In such cases, tracheostomy was usually done at the time of surgery and respiration was assisted postoperatively.

### Heart Size

We felt that the heart size as seen on the chest x-ray would be a good objective index of postoperative improvement. Table 7 shows that the heart size often improved, especially in the aortic cases. However, the largest hearts have usually not returned to normal size even when surgery was technically successful. Our experience corresponds to that at Mayo Clinic[5] where it was found that a return to normal heart size six months after surgery was frequently associated with definite symptomatic improvement while patients who showed little, if any, change in heart size by x-ray failed to have symptomatic improvement.

**TABLE 9**

LATE COMPLICATIONS

| | Mitral | Aortic |
|---|---|---|
| Congestive Failure | 15 | 9 |
| Sudden Death | 4 | 7 |
| Thrombosis | 4 | 0 |
| Valve Leak | 1 | 7 |
| Hemorrhage | 6 | 6 |
| Hemolysis | 0 | 3 |
| Endocarditis | 0 | 1 |

**TABLE 10**

WORK RECORDS — 61 PATIENTS

| | |
|---|---|
| Pre-op Job | 13 |
| New Job | 9 |
| Easy or Part-time Job | 8 |
| Not Working | 31 |
| (21 Medically unable) | |

In the Mayo Clinic series 80% of patients undergoing aortic valve replacement had a decrease in heart size whereas only 50% of those with mitral valve replacement had a similar decrease six months after surgery.

Figure 1 shows a typical good result in a case of aortic insufficiency treated by insertion of a Starr-Edwards valve.

Figure 2 shows improvement resulting after replacement of the aortic and mitral valves. The patient had a cerebral embolus in 1962 resulting in aphasia and hemiplegia. Nevertheless he was able to undergo a mitral commissurotomy with some benefit. By 1966 he was experiencing intractable congestive failure with stenosis and insufficiency of both the mitral and aortic valves so that he was almost continuously hospitalized for several months. Further surgery was reluctantly suggested but was eventually carried out successfully and the patient has been able to resume a happy family life. Figure 3 shows the characteristic relation of the two valves, the mitral being the larger and pointing toward the left ven-

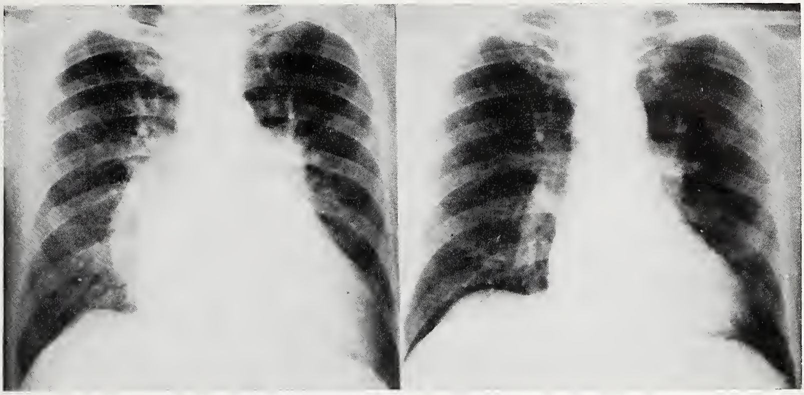

Figure 6. Same case as Figure 5. Chest x-ray has almost returned to normal.

tricle while the aortic points away from it.

### Electrocardiograms

Electrocardiograms showed disappointingly little evidence of improvement in many of our cases (Table 8). Persistent evidence of left ventricular hypertrophy suggests that there is permanent abnormality of the myocardium in many cases. Figure 4 is an example of definite improvement in the signs of left ventricular hypertrophy a few months after aortic valve replacement for aortic stenosis. The voltage is less and the S-T and T abnormalities show improvement, especially in the left chest leads.

Figure 5 shows the post-operative change in a case of mitral insufficiency. This patient had become a debilitated invalid with tricuspid insufficiency complicating his left heart failure and with hepatic failure beginning. The surgeons believed that the tricuspid lesion would take care of itself if the mitral valve could be replaced and this proved to be correct. Eventually this man resumed full time employment. Figure 6 shows the change in heart size following surgery.

### Congestive Failure

Table 9 shows that failure has been the commonest post-operative problem. This may represent either inadequate valve correction or permanent myocardial damage. Braunwald's group has documented the uniform post-operative improvement in pulmonary hypertension, intracardiac pressures, and cardiac index at rest. However, the responses to exercise were still abnormal in those who were studied.

In mitral surgery factors which may contribute to persistent failure include partial separation of the prosthesis from the mitral annulus with resulting insufficiency, and obstruction or trauma due to the presence of the valve cage in the left ventricle.

Poor results following isolated aortic valve replacement are often due to one or more of the following: leakage around the valve, mitral valve disease, residual aortic valve pressure gradient, myocardial or coronary disease, complications arising at the prosthetic valve — thrombosis or ball deterioration.

Valve leaks have caused aortic insufficiency in about one third of our aortic replacement cases. This has usually been insignificant but may have contributed to red cell fragmentation and hemolysis in some cases.

*Thrombo-embolism* has been a constant hazard for patients with prosthetic valves. We have advised long-term anticogulation for

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our patients although many have not been in a position to have really good supervision and hemorrhagic complications have been frequent but not as serious as the thrombotic ones. Hope is to be found in the new cloth covered Starr-Edwards valves which are expected to be non-thrombogenic. We have just recently begun to use these valves.

### Work Rehabilitation

Only a minority of our patients have resumed full time active work (Table 10), and this is in contrast to Starr's report that a majority of his patients have been able to undertake some type of full time employment. The difference may reflect the types of population from which the two groups of patients were drawn.

### Summary

One hundred open heart operations were done on 97 veterans. Most of the lesions involved the mitral or aortic valves. The overall mortality (early and late) was 33 per cent. Most of the survivors have had symptomatic benefit although their electrocardiograms and chest x-rays have often not shown a return to normal. Postoperative complications have included congestive failure, valve thrombosis, and hemorrhage due to anticoagulation.

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## HE'S ONLY A DOCTOR

As for the widespread and general character of isolation in the medical community, it must have occurred to readers that many if not most of the troubles that harass the medical and allied professions now are due to one or another kind of separation. Here are a few examples of isolation: the practitioner isolated from the investigator, specialist from specialist (eg, internist from surgeon), faculty from students, medical school from affiliated hospital, medical school from community, hospital from neighborhood, practitioner and investigator from federal and local planning organizations, practitioner and investigator from local and national medical societies, medical societies (specifically, the American Medical Association) from the Government on one side and from the medical public on the other, and nurses from the rest of medicine. All these divisions have created dozens, even hundreds of separate groups within the profession which has been so preoccupied with internal wrangles that it has become weakened by factionalism and has stopped listening to noises outside. This last defect, the worst of all, is mainly responsible for the bad press the profession now enjoys . . .

"The separations that plague and weaken us will not be cured by name-calling, but by new ways of thinking . . .

"If they are not, and if medicine and science remain divided within and aloof from each other and from the rest of the world, those of us who are more or less involved in clinical medicine are likely to suffer the fate of the physician in Kafka's allegory about a country doctor. The people sing a simple melody: "Und heilt er nicht, so totet ihn! 's ist nur ein Artzt, 's ist nur ein Artzt"; "and if he does not heal, then kill him. He's only a doctor . . . " (*Nicholas P. Christy, J. of Clin., Endo., and Metabolism, p.* 1782).

# THE PSYCHONEUROSES

> **"The fault dear Brutus, is not in the stars,**
> **But in ourselves, that we are underlings."**
> *Shakespeare: Julius Caesar*

John A. Koltes, M.D.

The psychoneuroses are a ubiquitous disorder. Just as everyone seems to be vulnerable to infection so, too, they seem to be vulnerable to the neuroses. But just as some people have a high degree of resistance to the invasion of organisms so, too, some people have a high degree of resistance to the development of psychological conflict and breakdown.

There is no way of knowing who will fall heir to a neurosis and who will escape. While it is possible to empirically speculate about who may develop symptoms and who may not, there is no sure way of accurately predicting it any more than there is accuracy in predicting who will develop an infection.

In view of the universal existence of the neuroses it is of some merit to consider their nature, psychodynamically and descriptively, for by so doing one is then in the best position to negotiate with the pathological forces and reduce the symptoms brought on by them.

There is a tendency in psychiatry in the past few years to discard quality in favor of quantity in keeping with the national trend of supplying all things to all men. Some psychiatrists fall victim to the view that the neuroses are modest conditions which yield to suggestion or more particularly to manipulation of the environment. Such views are based on the belief that neurotic symptoms develop as a result of emotional trauma caused by a vindictive environment. The psychiatrist then concludes that he need only manipulate the environment to make things better for the patient.

There is abundant evidence in the literature and in every day experience that children raised by brutal fathers or seductive mothers will very likely develop neurotic symptoms. But how about those children raised by parents like this who do not become neurotic; or even more interestingly, how does one explain the development of severe neurotic symptoms in people who are raised in essentially normal families?

To take the view that the human organism mirrors its environment and develops pathological reactions only under the influence of noxious stimuli is an age-old concept. Physicians and philosophers in the golden age of Greece held this view, with reservations, and in the 18th century the famous French psychiatrist, Esquirol,[1] believed that the most common causes for mental disturbances were "loss of property, insults to one's honor, or frustrated love." Even today it is common to hear that faulty environments cause mental disturbances, or that people, like animals, become imprinted or conditioned to certain things and the only effective treatment is to decondition the patient to his noxious stimuli.

But we cannot overlook the fact that one can observe normal people raised in disturbed environments and abnormal people raised in comfortable environments. If one cannot find an explanation for trouble around the patient then it is reasonable to look within the

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patient for an explanation. It is to Freud[2] that the scientific world owes credit for discovering that neurotic symptoms take their origin not only from trauma arising from external stress but may also, and indeed, in certain neuroses almost exclusively, take their origin from internal stress. How then does one conceptualize the psychic life of man and postulate the structure of the neuroses? The psychoanalytic view proposes a theoretical structure that makes the nature of neurotic symptoms understandable.

### Outgrowth of Conflict

The symptom neuroses are an outgrowth of conflict within the unconscious mental life of people. They are expressions of attempts to adjust to unconscious impulses or desires which are unacceptable to the conscience. In other words, the mind, a dynamic system of forces and counter forces, expresses itself outwardly as the result of the interaction of these forces. Not everyone is neurotic, yet everyone has the capacity to develop a neurosis due to the fact that all people have an unconscious mental life as well as a conscious one.

The personality seems to function according to certain principles, and these may be observed in greater or lesser degree in every person. Mature, well-integrated personalities respond to the pressures of reality (Reality Principle) and at the same time find satisfaction for their individual needs (Pleasure Principle). Some personalities, especially those people who are self centered, but also those people under excessive environmental pressures or internal conflict, are more pleasure seeking. In the latter two instances the person attempts to avoid pain which in a sense is equivalent with being pleasure driven.

Freud considered a variety of methods for dividing the mind into component structures, and settled finally on the concepts of *id*, *ego*, and *superego*. The id he designated as that area of the personality from which spring our drives, needs, desires — the instinctual life of the person. To that portion of the personality which masters both the instinctual drives (for food, shelter and reproduction) and the testing of the world around us he gave the name ego and to our conscience, because it is an outgrowth of the ego, but also because it has unconscious elements, he gave the name superego. Impulses constantly flow from the id since they are the vital nature of the organism and cease only with death. The intensity and frequency of the drives as well as the manner in which they are dealt with by the superego determine to some degree the nature of the personality. A man with a powerful sexual drive and a weak superego will probably be sexually psychopathic, whereas a person with both a strong drive and a strong conscience should be mature, everything else being equal. But he is subject to greater danger of neurotic conflict than the first type because of the greater potential of forces and counter forces that are active within his psychic apparatus. The person who has a weak sexual drive and a strong superego will be least subject to conflict simply because there isn't the quantity of energy available to cause trouble.

In our daily lives the personality functions smoothly, the three components working in harmony according to the principles described above. Normally the ego has the capacity to master inner tension and external stress without undue difficulty. Periodically, excessive pressure may develop internally or externally, eg, when a man feels a strong temptation to cheat and thinks that he can get away with it; or the despised mother-in-law announces that she is going to visit for a week. Such pressures do not go unnoticed but they can be tolerated and ultimately mastered. This is normal mental functioning and represents typical pressures encountered by the ego in the lives of men great and small. The story of neurosis is quite different from those normal reactions but can be best understood by using the same concepts and principles. I would like to re-emphasize the fact that neurosis are not conditions arising primarily from a traumatic environment. If this were the case it would follow that every person was entirely "normal" until hit by some outside force. It is the purpose of this paper to underline the view that neuroses arise from far more complex circumstances and that they are intimately entwined in the instinctual, unconscious life of the patient.

There are additional aspects in the etiology of the neuroses which must be considered. One of these is the fact that the mind retains impressions, fears, doubts, cravings and anxieties from earliest times. Whenever an unconscious conflict develops in adult life there is a certain throwback to childhood experiences and the symptoms frequently will reveal the regression to infantile aspects of the personality. The development of conflictual problems in adulthood most often occurs in people who have had unresolved problems of childhood which were "swept under the rug" (to use Waelder's term) but never resolved.

One last point, not all unconscious conflict leads to the development of a neurosis. A symptom neurosis is an outgrowth of unconscious sexual conflict or stated another way, hysteria. The obsessional neuroses and phobic states are signs of hidden sexual conflict, breaking out in adolescence or adulthood but having as its antecedent similar unresolved conflicts in childhood.

### Symptom Neuroses

For purposes of clarification it is helpful to divide all neuroses into two groups, the symptom neuroses and the character neuroses. The symptom neuroses — anxiety states, hysteria, phobic states and obsessive-compulsive states—are conditions which exist in otherwise normal people. The symptoms are replusive to the patient and he attempts to rid himself of them as one would rid himself of pain and suffering from physical causes. A business man severely criticizes himself when he avoids flying for fear of crashing; a housewife criticizes herself when she can only stay in a supermarket for a few minutes until driven out by panic; a musician feels a sense of self-contempt when he can't rid himself of a song title that repeats itself over and over in his mind; a college student condemns himself for having to rush back to his dormitory room three times to be sure that the door is locked when he already is late for class. And so it goes; this is the common story of neurotic suffering.

Does the student or the musician or the housewife regularly report that they were raised in traumatic environments, the product of broken homes, deprivations and anguish? The answer is: sometimes, but not always. One can develop these symptoms when raised under perfectly healthy circumstances. Let me illustrate: a 45-year-old salesman reported that he was very concerned over the possible loss of his job because he could no longer either drive his car through the tunnels to New York or take the train through them. He was married and the father of six children. Raised in a strict Irish Catholic home, the son of a physician, he had been quite successful and content in life until one day while on the train to New York he became panicky and had to disembark at Trenton. He was unable to go on, felt very apprehensive, but began to feel better as he returned home. A second attempt to return to New York(a) produced the same results. He simply could not go and he ultimately petitioned his boss for a desk job to avoid the traveling.

Such a history is a classical example of a simple neurotic reaction. To understand the man's illness, one approach is to question the symbolic(b) meaning of the symptoms. The fear of traveling, fear of driving through a tunnel, fear of loss of control, and sense of improvement when at home are the major symptoms. The fear of traveling and going through the tunnel is a symbolic idea. The implication in all of this is that some force inside is going to rise up and overwhelm the patient, that he is in danger from loss of internal control. The question is: "What is the danger; of what is he afraid of losing control?" The answer to these questions can be found by making an interpretation of the symbolic meaning of the symptoms. It is common knowledge that structures like tunnels, rooms, caves, etc., are used by the unconscious as female symbols, just as snakes, obelisks, crutches, etc., are used as male symbols.

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(a) I'm tempted to use the salubrious term "Fun City" which has enshrouded the name of this great metropolis. The name suggests, albeit tangentially, a possible reason for the patient's difficulty in going there. "Fun City" to him had a special meaning.

(b) By symbol one means the assignment of a special meaning to an object. Symbolization is an unconscious process in which one object or set of circumstances come to stand for or represent another. Because the process is out of consciousness the patient is unaware of the displacement that takes place. Symbols are to be differentiated from signs. A sign is a real object with universal meaning and without unconscious meaning. Animals can understand signs (the dog comes when one whistles) but they apparently are incapable of symbolic representation.

To go into the tunnel produced a sense of panic, to be avoided at all cost. Why was he so terrified? Because there was the unconscious wish to step beyond the bounds of the marriage while in New York, an impulse quite unacceptable to his strong religious conscience. The resulting conflict between the temptation and the conscience, never in conscious awareness, was revealed in his symptoms and naturally he felt better at home, removed from the arena of potential transgression. A clue to the meaning of the symptoms was revealed after several interviews when he told of a dream in which he had the urge to touch the hand of a young attractive woman sitting next to him on a train. After reporting the dream he instantly said it was only a dream, unimportant, meaningless and of course had nothing to do with his fears. One would quickly think of the words of Shakespeare, "Me thinks thee doth protest too much."

The symptom neuroses then result from the development of an unconscious conflict between the hidden desires of the personality, however protean those desires may be, and the conscience or superego which serves as the great watchdog of the personality permitting the expression of impulses only when acceptable to the censor. If no unacceptable temptations or desires arise, then no conflict occurs, or if conflicts remain unconscious, no symptoms occur. But if the conflict begins to rise to the surface of the mind due to a combination of partial breakdown of the defenses against it, together with previously unresolved sexual tensions of childhood, then symptoms develop as an outward expression of the conflict.

Neuroses, at least the anxiety states, phobias, hysteria and obsessional states, are psychological states resulting from the development of unconscious psychic conflict, the partial failure of repression to control the conflict and keep it unconscious, and the return of the repressed material through the development of symptoms which reveal the nature of the conflict. The simplest form of neurosis can be observed in the case of the middle-aged spinster who is afraid to enter her apartment at night for fear a man will be hiding in the bedroom and would attack her. The blatantly clear meaning of the symptoms, so obvious to everyone but the patient who comes to the doctor's office pleading for help, points directly to the unconscious conflict over sexual desires on the one hand, and fear of men and sex on the other.

### Character Disorders

Not all psychological conflict is expressed in the form of symptom neuroses. In addition to the symptom neuroses there is a second group of disorders commonly called character disorders. These have essentially the same etiology and structure as the symptom neuroses but differ from them in several important respects. In both the symptom neurosis and the character neurosis the illness is caused by an unconscious mental conflict. In the symptom neurosis the conflict is expressed in painful, symbolic form (fear, anxiety, hysteria, etc.) whereas in the character neurosis the symptom is expressed as some pathological trait of the personality (lying, stealing, addiction, etc.). In the latter instance the symptoms are seen as exaggerated traits of normal behavior and are therefore more difficult to detect and are far less painful for the patient to endure. The excessively punctual, and meticulous person, the religious fanatic, the sexual deviate, the sadist exemplify this group.

The neuroses will probably continue more or less in their present form so long as the human organism remains in its present state of development. As we understand them the neuroses are a uniquely human experience, subject to the laws of biology and psychology. We cannot look forward to a day when mankind is free of neurotic suffering in the same way that we can to freedom from certain physical diseases. It is inconceivable that all people for all time would be free of neurotic symptoms, at least until some countless time in the future when the human organism is significantly different from that with which we are familiar today. For today we must content ourselves with the frailities of human nature and attempt to resolve malfunction from whatever cause within the limits of our contemporary therapeutic powers.

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## BESIDES BULLETS

Scoreboard of diseases affecting US G.I.'s in Viet Nam, January to June 1967.

| Disease Toll Jan.-June, 1967 | Number of Cases | Total Lost Man-days | Average Days Lost per Disease |
|---|---|---|---|
| Malaria | 4,258 | 149,030 | 35 |
| Fevers of unknown origin | 11,154 | 78,078 | 7 |
| Diarrheal disease | 9,637 | 57,822 | 6 |
| Hepatitis | 1,261 | 50,440 | 40 |
| Venereal disease | 46,561 | 46,561 | 1 |
| Respiratory disease | 5,500 | 16,500 | 3 |

*(U.S. News and World Reporter Oct. 16, 1967.)*

## NEED FOR MEDICAL JOURNALS OVERSEAS

The World Medical Association, with the collaboration of the American Medical Association, is engaged in a doctor-to-doctor program whereby the physicians of the United States are being asked to send their current medical journals — after they have read them — to colleagues overseas, particularly in Asia, Africa and Latin America. This program has two functions: to provide *current* medical literature to overseas physicians who cannot obtain it otherwise; and to open up avenues of communication between all physicians and their overseas colleagues, establishing thereby a basis for better understanding.

The names of these overseas colleagues and their specialties are obtained in various ways — from secretaries of the national medical association of their countries, institutions, United States Department personnel and many other sources.

Those wishing to participate in the program should send their names and addresses, and the titles of the journals they will contribute, to the Doctor-to-Doctor Program, care of the World Medical Association, 10 Columbus Circle, New York, N. Y. 10019 (Ada Chree Reid, M.D., Director)

## WHAT TO DO WITH OLD MEDICAL JOURNALS?

University Park, Pa. — Heifers appear to thrive on a diet of molasses and newsprint. The molasses stimulates activity of bacteria in the cow's first stomach, which increases the animals' acquisition of nutrients from their other rations, and the fibers in newsprint.

In a 56-day-long test at Penn State, a group of heifers each ate about 2.5 pounds of molasses and newsprint daily. The individuals in the test herd gained weight and appeared as healthy as the controls, but the investigators saw no proof the animals preferred slick magazine papers to newsprint. They ate either with equal enthusiasm. (Excerpted from Dateline in Science, Jan. 1968.)

# Highlights

## BACTERIAL L-FORMS AND CLINICAL DISEASE

Carl Godzeski, Ph.D., *Indianapolis, Ind. Medical Conference, WMC, February, 1968*

At present there is a small but significant revolution in bacteriologic concepts. The basic tenet of this resolution may be summed up as this: bacterial organisms will adapt to an environment in a way most suitable to ensure their own survival. One such method of adaption in a liquid medium is transformation to propagating spheroplast or protoplast. These are wall-less structures which lack the muramic acid characteristics of the bacterial wall. The bacterial L-forms are examples of one type of surviving protoplasts and they are capable under ideal situations of reverting to the parental cell wall form (C for classic form).

Certain adverse environmental stimuli, including the presence of antibiotics, can induce a bacterium to change to a spheroplast phase. This change has the metabolic function of enabling the bacterial organism to survive such detrimental environments.

Lysozyme acts on bacteria to dissolve their cell walls and produce protoplasts, and under non-ideal osmotic conditions, various shaped cells.

These transformations are easier to study in vitro than in vivo, but probably have much to do with clinical antibiotic mechanism and efficacy. Although the actual mechanisms by which antibiotics act have not yet been determined in vivo, there have been extensive in vitro studies. In vivo, however, there is certainly an additional effect of the host's immune system in the induction of L-phase bacteria. This is somewhat mimicked by the addition of serum to the culture media.

When human serum is added to media in which enterococci are growing vigorously, a number of different morphologic L-forms appear. With replating in media without sera, reversion back to the parent C-form will occur.

In the traditional blood agar plate used for sensitivity testing, L-phase colonies can be found in the clear or inhibited zone around the antibiotic disc.

If bacteria are plated on an agar plate which has been scored in the middle and the trough thus produced filled with an antibiotic solution, there will be to the naked eye a zone inhibition of bacterial growth surrounding the antibiotic filled trough. If this apparently clear zone of agar is carefully examined by cutting out the clear sections and passing them through millipore filters of very small aperture, L-forms and other granular forms of bacteria will be grown from this area which appeared to show complete inhibition of growth.

Technical variations are extremely important in the study of L-forms in the laboratory. Serial dilutions using different media will change the minimum inhibitory concentration (MIC) of antibiotics so that standardization of cultures and culture techniques is necessary to produce uniform results. This is especially so when one is studying antibiotic efficacy and resistance and the development of L-forms.

When L-forms are inoculated into eggs there is a decreased survival of the embryonated eggs and reversion of the L-forms to C-forms. If these same eggs are treated with antibiotics simultaneously injected along with the L-forms, the L-forms persist, reversion to C-forms is prevented and survival of the eggs is increased.

That antibiotics induce the formation of L-forms can also be proven by varying the quantity of antibiotics and/or human serum in the media. Antibiotics lose their bacteriocidal effect in vitro when serum is added. L-forms then appear at concentrations of antibiotic which were formerly bacteriocidal.

In experiments in which mouse IP inoculation of bacterial cultures is made and antibiotic then given intravenously, L-forms of the bacteria appear within fifteen minutes in the peritoneal exudate.

Antibiodies manufactured by living organisms against whole bacteria cells are frequently weak against protoplasts or bacterial forms which have lost their cell membrane.

Freund's complete adjuvant, which is a mixture of mineral oil and dead mycobacteria cells, when injected into animals improves their ability to respond to an antigen stimulus and therefore increases clearance of C-bacteria from the peritoneal cavity. This is associated with an increased number of phagocytic cells which exterminate the C-bacteria. When L-forms are injected along with Freund's adjuvant, there is a poorer antibody response and longer persistence of the L-forms within the pertoneal cavity. There is also a marked fibrotic reaction within the peritoneal cavity with the production of heavy fibrous exudate and strands.

Inoculation of L-forms of E. coli into chick embryos will produce an interferon-like substance which also protects the embryos against infectious bronchitis virus, thereby indicating some non-specific immune reaction on the part of chick embryo as a response to L-form infection.

Granular bodies can sometimes be observed to form within a propagating spheroplast. These granular bodies are very small particles which may pass through filters with an aperture of only 0.2 millimicrons after which they reproduce as micro-colonies that have the appearance of PPLO. Multiple subcultures on selected media will cause reversion of these pinpoint colonies back to the classic parental form. These small colonies produce relatively large amounts of acid from glucose in the media, with resulting suicide of the culture within 24 hours if it is not frequently subcultured on new non-acid containing media.

It is tempting to make clinical speculations that chronic infection results from persistent L-phase. In a set of experiments in which mice received cortisone, L-inoculums persisted for an increased duration despite lack of evidence of clinical disease. But when cortisone was given again, severe clinical infections with death ensued.

Ongoing experiments are being conducted in which heart tissue obtained at open heart surgery from patients with rheumatic and congenital heart disease is being carefully cultured for L-forms of bacteria. To date, colonies of L-forms of gram negative bacilli, enterococci and staphylococci have been grown from this mince of heart tissue, with reversion to C-forms possible. Valvular cultures have not yet been done. The staphylococci so demonstrated have been initially coagulase negative and non-hemolytic, but have regained these properties as they reverted to C-forms in vitro.

Several families with chronic staphylococcal infections and long histories of antibiotic therapy have been demonstrated to show L staphylococci in their blood. These organisms are oxygen sensitive and therefore need oxygen deficient media, media quite different than classic staphylococcal media, in order to be subcultured. When properly handled, they will ultimately revert to classic staphylococcal forms. This oxygen sensitivity has also been true of the L-forms cultured from patients with chronic pyelonephritis.

Recently patients with rheumatoid arthritis have been found to show an unusual streptococcal form in high concentration in their feces, especially at the time of relapses of their rheumatic processes. With germ-free mouse inoculation, these organisms yield well encapsulated betahemolytic streptococcal abscesses which are non-fatal to the mouse but which become lethal and produce disseminated infection with the next animal passage.

The possibility that chronic relapsing infection represents genetic or immune insufficiency on the part of the host organism must be considered. For example, the antibodies produced against the bacteria might be against one morphologic form only so that generalized infection with L-forms might occur and persist.

It is certainly evident at this time that L-forms do exist in nature. Whether they are involved in persistent infection or related diseases not presently considered by many to be infectious (such as rheumatoid arthritis) continues to present a fascinating field for research.

In this particular phase of bacteriology it is important to look for the unusual and to expect the unexpected.

## THE NURSE SPECIALIST

Edward G. Benz, R.N., *Wilmington Medical Center. Seaford Medical Conference, March, 1968.*

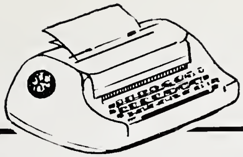
The clinical specialist as she is prepared and utilized today receives her academic and clinical preparation in the graduate program of a University Nursing Program. The best programs are constantly attempting to provide more in-depth experience in the clinical area of the selected specialty so that the nurse specialist upon employment is not merely a theoretician but an expert practicing clinician skilled in evaluation of nursing needs who has the ability to define and develop a nursing plan and expertise in implementation of the care plan. She functions as the team leader of the nursing care group and collaborates with the medical staff in providing total care. The nursing programs are graduating increasing numbers of clinical specialists particularly in psychiatry, medical-surgical and maternal-child health nursing. More recently, programs have been developing curricula to enable them to graduate specialists in coronary care nursing. Although the specialists are highly skilled in the technical aspects of providing care and can be of great assistance to the medical staff, they are prepared as nurse specialists and not as medical assistants. As nurses they, the medical staff, and administration must be concerned that appropriate controls and procedures are maintained to ensure that safe care is being rendered. The nurse administrator has to be flexible and experimental in her approach to utilization of the nurse specialist so that she is a free agent in terms of scheduled time, not involved in administrative trivia but at the same time well accepted by others of the nursing staff.

The University of Delaware is rapidly expanding the Baccalaureate program; Dean Carl and the faculty are planning to begin a graduate program in the Fall of 1968 focusing on psychiatric and maternal-child health clinical nursing specialists.

Downstate physicians have an especial interest in the programs for the "downstate" nurse and Dean Carl is concerned about the role of the nursing school in providing broad educational programs which would be helpful for all Delaware nurses. To this end, two clinical seminars for nurses have been prepared for presentation via closed educational television to all areas of the state. Brochures about these programs have been widely distributed to all hospitals in the state and there will be an expansion of these seminars next year. As some of the Wilmington Medical Center in-service and staff development programs mature, the participation of the nurses from Kent and Sussex County will be welcomed.

### LACK OF VITAMINS

. . . At least 80,000 of the world's children, under age four (mostly in Indonesia, Malaysia, Vietnam, Jordan, Egypt, parts of Latin America, India, and Pakistan), go blind each year, and half of them die, because of lack of Vitamin A in their diet, declares Dr. Donald S. McLaren, professor of clinical nutrition at the American University of Beirut.



# Special Reports

## GROUP PRACTICE:

### Problems and Perspectives

**Annual Health Conference — New York Academy of Medicine, April, 1968.**

CHARLES S. RIEGEL, M.D.

The 1968 Annual Health Conference of the New York Academy of Medicine addressed itself to a careful evaluation of the current and future role of group practice in American medicine. The issues presented were important ones. Is group practice the only way to cope successfully with specialization? What are the effects of group practice on quality care, on the physician-patient relationship, and the effectiveness of the physician?

In his opening remarks the chairman, Dr. Milton Terris, spoke on the origins and growth of group practice. Although 20-some years ago physicians were told that group practice was a vehicle in which more health services could be provided more efficiently and to a greater number of people, by 1966 only seven and one-half percent of all physicians were involved in group practice. Recently, there has been renewed interest not only by various medical groups but also by governmental agencies such as OEO, in group practice as a possible way to provide more efficient medical care at more reasonable cost.

Dr. James T. Howell of the Henry Ford Hospital gave an excellent description of how a group of 250 physicians provides medical care to a large number of patients in the Detroit area. He stressed that efficient organization seems the key to their success. Emphasis is placed on specialization, not only in the professional area, but also in the many para-medical fields such as insurance, laboratories, and records.

Dr. F. Morgan Pruyn discussed a multiphasic clinic in a suburban community, the Mt. Kisco Medical Group. He emphasized how important it is in a small group to select compatible members who are both well trained and well motivated. The Mt. Kisco group members become partners after two full years of service; at that time financial reimbursement is made on an equal basis, with surgeons and related specialties obtaining a 12 percent addition to their yearly salary. Dr. Pruyn emphasized that as in a larger group, physicians should devote full-time to the practice of medicine and leave the business side of practice to business managers, accountants, and competent secretaries.

Both speakers included as advantages of group practice continuity of patient care when the private physician is unavailable, a more effective and efficient manner of obtaining consultants and consultant help, and patient acceptance.

Richard M. Bailey, Ph.D., economist, gave a profound analysis of the relative cost to the patient in solo practice and group practice. After analyzing the hours worked and the fees charged in the San Francisco Bay area, he concluded that patient cost was considerably higher in a multiphasic group than in a single specialty group or in solo practice. As the size of the group increased, he found a corresponding increase in the use of ancillary services such as laboratory procedures and therefore the total cost of care. His analysis revealed that in solo practice, 85 percent of revenue is obtained from office visits, 15 percent from ancillary services. In three man single specialty groups, 66 percent of revenue is from office visits, 34 percent from ancillary services and in large multi-specialty groups, 52 percent of revenue is from office visits and 48 percent from ancillary services.

In analyzing the cost to the patient, Dr. Bailey stated that the fees per visit and fees per hour were considerably higher in the larger group. For example, in the multi-specialty group $37.00 per hour was the usual patient cost. In the small group, this was $27.00 per hour, and in a solo practitioner's office, $26.00 per hour. There was also a considerable degree of difference in hours worked with "group physicians" working 20 hours less per month than the solo practitioner and the physician involved in a small single specialty group working 10 hours less per month than the solo practitioner.

Most of the discussants felt the above analysis is misleading because a considerable share of the income derived in a large, multi-specialty group is from the more expensive laboratory procedures which a solo practitioner normally refers to the hospital, as well as from income provided through the services of surgical specialties which traditionally and customarily command higher fees. They felt that the cost to patient is actually less when he is involved in obtaining medical care through a multi-specialty group.

One session concerned itself with new developments in prepaid group practice which include Medical and Medicare. A recent study of the Kaiser program which involves some 1,700,000 members of which 60,000 are Medicare recipients gave the following information: People over the age of 65 use hospital services four times as much as those under 65 and use physicians services on an outpatient basis 1.6 times as much as people under 65. The most significant disruption in the day-to-day workings of the Kaiser program since Medicare and Medicaid has been the burdensome administrative or paper work needed to run the program. The Kaiser group feels that they have cut the cost of medical care by combining both medical insurance and medical care under their pre-paid plan.

One full day was taken up with an excellent review of group practice and comprehensive health care centers. OEO is now involved in many deprived areas of our country in providing medical care through group practice. In the South Bronx area in New York and Memorial Square area in Chicago the importance of a well organized health care team has been emphasized. There it has been shown that the health worker cannot assume that motivation to seek health care is present in the poor community. It is therefore, important to have a well motivated and intelligent social worker as part of the health team. This worker often has to go out into the community, occasionally on a door-to-door basis, to let the inhabitants know that health care is available. It is important that this initial contact be made by an individual who is familiar with the community and lives in the same area so that she is accepted by that community.

In most cases a modified Cornell Medical Index is used as the initial history; this is obtained from the patient by the physician's assistant or aide. This assistant may be a nurse, but in many cases is an individual, preferably from the area, who has undergone special training. All contacts made by the group personnel, whether by physician, social worker, nurse or physician assistant, are placed on one chart. This chart goes with the patient when he is admitted to the hospital and is then returned to the clinic with a copy of the discharge summary. Most of the clinics also provide laboratory and x-ray equipment. Emphasis is placed on providing basic services such as blood count, urine and chest x-ray. It is felt that a small pharmacy should be an integral part of the group practice.

All clinic physicians are on the hospital staff so that the clinic physician can continue to take care of his patient when he is admitted to the hospital. Evening appointments are a necessity so that the working mother, who is often not allowed to leave her job during the day, can still utilize the clinic services. In both the South Bronx area and in the Chicago area, providing group practice in economically deprived communities increased the number of these patients in the hospital but decreased the length of stay so that while bed utilization remained approximately the same, a larger number of patients were being treated.

It is also important to be aware that for a group practice or clinic to be successful, it must be first invited into the community, and there should be some consideration given to what the inhabitants desire in health care. When a questionnaire was sent to a large, low income group to express what they desired in health care, they listed in decreasing priority: dental care, child care, emergency care, and preventive medicine.

Although each poverty area differs somewhat from location to location with respect to what percentage of patients have Medicaid or Medicare, OEO has and is providing funds on a pre-payment basis for those individuals not covered under private or governmental insurance. In general, the funding from OEO consists of $100 per person per year for those people eligible. The government is also becoming increasingly active in providing health care for children and youths. Funds are being provided for this care by the Children's Bureau of HEW through Title II. At the Roosevelt Hospital in New York there is a child and adolescent clinic totally funded by the Children's Bureau to care for most medical problems including dental care, social analysis, and basic health needs.

It was somewhat dismaying to learn that 40 to 45 percent of the children fail to keep their appointments. It seems important to provide a health center which is located in the area to be served, and to provide a strong liaison between the patient and the center through the use of social workers, nurses, and physician assistants to keep the "no-show" percentage low.

Dr. Mary C. McLaughlin discussed the Health Care Center program of the New York City health services. She stated that in health centers or groups in which dental, medical, pediatric, and ob-gyn services are provided, 85 percent of the medical problems of the area can be adequately covered.

### Summary and Conclusions

Group practice in which para-medical personnel are utilized to the utmost does provide an efficient and effective way of providing health care services. Group practice appears to be an effective way of combating the lower health standards of an economically deprived community, particularly with full utilization of para-medical help such as social workers, nurses including public health nurses and visiting nurses, physician assistants, and others. Through both fee-for-service programs utilizing Medicare and Medicaid and prepayment programs such as provided by OEO and Title II, top quality medical care has been and can be provided in economically deprived areas.

## HOW MANY SNAKES MAKE A CADUCEUS?

### The Staff of Aesculapius

The staff of Aesculapius, the Greek God of Medicine, is the true symbol of medicine. Legend interprets the staff as one of the many Greek symbols that indicated the life-giving quality of the physician. Snakes became connected with Aesculapius because of their wisdom which represented prudence. Their skin shedding ability represented longevity and immortality. Snakes symbolized convalesence in their ability to change from lethargy to rapid activity.

### The Staff of Hermes

The staff of Hermes is sometimes used as the symbol of medicine; however, Hermes was not a physician but a clever thief who served as the "god of rogues." He was appointed to send the souls of the dead to Hell—scarcely the function of a physician. Legend indicates the snakes of Hermes had no medical significance—they were merely found fighting and were separated by his wand.

# THE HOSPITAL: From Then to Now

**• To those who have been associated with medicine in Delaware, and especially in Wilmington, Mr. Charles A. Silliman's book, "The Hospital: The Story of Delaware Hospital," will make fascinating reading.**

About the middle of September, 1918, Wilmington newspapers began running stories on outbreaks of influenza in neighboring eastern cities and in Army camps around the country. Finally, Wednesday morning, September 25, the following story appeared on page one of *The Morning News*:

'There is no denying that there are quite a few cases of influenza in Wilmington and vicinity. The dread and troublesome disease has struck this section in more than mild form, judging from the information gathered by a *Wilmington Morning News* reporter last night. More than a dozen applications have been made for the admission of patients suffering from the malady at the Delaware Hospital within the last few days. This institution, it was reported by the officials last night, cannot take any of the cases as all the wards are full. Although this is the case, B. B. Lyons, superintendent of the hospital, is taking active part with others in completing arrangements to take care of the situation should there be a real epidemic in Wilmington and vicinity.'

The situation was even more confused because influenza was not a reportable disease and the Board of Health had no idea how bad it was becoming. Doctors might mention in casual conversations that they were treating twenty or thirty cases, but no one knew exactly.

Emergency plans were made for taking over Town Hall, the New Century Club, and the Wilmington Country Club, if they were needed. On September 26, the newspapers carried a statement by Dr. Robert E. Ellegood, president of the Wilmington Board of Health, who was trying to assemble more information on the extent of the disease. He said:

'In order that the Board of Health may estimate the seriousness of the reported epidemic of influenza, all physicians of Wilmington are urgently requested to report all suspected and diagnosed cases of influenza and pneumonia to the Board of Health.

The Delaware Hospital laboratory has expressed its willingness to make any bacteriological examinations of specimens of suspected cases'.

The offer of the Delaware Hospital laboratory was, no doubt, much appreciated by local doctors and health board officials since the city lacked a health laboratory. Heretofore, when anything had to be analyzed, it was necessary to place it on ice and send it to Delaware College at Newark, which took considerable time. Only a few weeks earlier, C. H. Wells, state director of health under the health committee of the State Council of Defense, had deplored the lack of a city laboratory.

Nurses were the most serious problem. There weren't enough to take care of all the patients even if they could use the additional space being offered in the various club buildings. Urgent appeals were sent out for all women who could serve as nurses aides by reason of the fact that they had taken home nursing courses or had some experience in nursing. Even those without any experience could be used in many small but important ways. It was going to be dangerous work, of course — they were dangerous times. Some of them hung back due to fear, others offered their services without hesitation. . .

On October 2, 1918, the city health board established a quarantine closing all places and gatherings which were not necessary for the public welfare. On October 4, the state board extended the quarantine to cover all of

Delaware. The quarantine remained in force until October 27.

The Board of Health called on the police department to secure men who would act as orderlies at the country club and other emergency hospitals, to hold down delirious and unruly patients. . .

At one point during the epidemic, twenty-three of the nurses at Delaware Hospital were down with the disease, and before it was over, six had given their lives, including two sisters. . .

Dr. William O. LaMotte, Sr., said many of the physicians became ill too, but those who remained healthy were given certain sections of Wilmington to cover. . .

His first day out, he was driven around by Anne Garrett, a woman volunteer. When Anne pulled up to a curb and he stepped out with his doctor's bag, crowds of people gathered around to plead with him to come to their home first.

The houses were usually hot and stuffy, so his first task was to get the windows opened and the place aired out. The next time around they would all be closed again, so he would have to tell them if they didn't keep the windows open he wouldn't return. They would open them then — just a crack.

The usual treatment was bed, aspirin, and some liquor, perhaps, but mostly rest. Now, of course, people are told to drink lots of fluids, but that wasn't thought of then.

Around town, in the offices and stores, the smell of carbolic acid and other disinfectants was very noticeable as nearly everyone sprinkled themselves with something. Even the trolley cars smelled like a doctor's office, it was reported. They were more comfortable to ride in, though, because the conductors had 'received strict orders to keep the cars filled with fresh air.' The constant clanging of the gongs and bells on the ambulances as they ran to and from the hospitals was not only annoying, but alarming to many residents. Dr. Henry Ward Briggs was one to urge drivers to break themselves of this habit. He said:

'The noise made by these machines is creating a panicky situation and it is affecting the well and the unwell. The victims themselves who are endeavoring to get sleep at their homes are annoyed by the clanging . . . and it is unnecessary.'

The panicky aspect of the epidemic was of real concern, because many of those being hospitalized or who were taking up the time of a physician, had nothing more than a common cold.

Two hundred packages of new flu vaccine were brought to the Delaware Hospital early in October and forty-five of the nurses and workers were inoculated by Dr. Emil R. Mayerberg. Daily clinics were offered the public. . . There was a difference of opinion among medical authorities, however, about how much help the vaccine was; thus all who could have, perhaps did not take advantage of the opportunity offered them.*

* * *

Dr. Margaret Handy arrived in town around the end of September, 1918, and went to work immediately:

'Dr. Ellegood knew my father very intimately and an hour after I appeared here with my father, he came to tell me that he he had work for me to do.'

'He brought me a car and a chauffeur, since I knew nothing about Wilmington, and gave me a list of people to go and see. They were all down in the Bancroft Mill area on Ivy Road. So I took over Ivy Road — grown-ups, children, everyone.'

'I had been working there only about ten days when they opened, for my benefit, a small children's ward down at the People's Settlement, and gave me thirty cribs of children to look after. I was nurse and doctor, aide, and sweeper-up and cleaner-up, and everything.'

'There were not enough doctors, so I was doing everything that was to be done. In the evening, as a matter of fact, when I was through down at the People's Settlement, I went out to the Wilmington Country Club and acted as a nurse, I guess. I helped Miss Duncan, anyway. She was most efficient.'

'People were dying like flies. The back porch of the club was lined with dead people whom they had no way to bury. They were just there until their bodies could be disposed of.'*

*Chapter VI, Epidemic, pp. 83-88.
*Chapter VI, Epidemic, pp. 88-89.

# Delaware Academy of General Practice

## PROPOSED FELLOWSHIP AMENDMENT DEFEATED IN SPECIAL SESSION

By a vote just short of the required two-thirds majority, the Congress of Delegates defeated a proposed Constitutional amendment to list "fellow" among classes of members in the Constitution of the American Academy of General Practice at a special, called session of the Congress, May 25 in Chicago.

The roll call vote was 65 for adoption of the amendment, 35 against. Under the Academy Constitution, adoption would have required 67 affirmative votes among the 100 delegates present.

Each of the 52 constituent chapters was represented, with 100 delegates certified and seated out of a possible 104.

Delaware's delegates voted in favor of the proposed Constitutional Amendment along with delegates from Alabama, Alaska (1), Arizona, Colorado, Connecticut, Georgia, Hawaii (1), Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Mississippi, Montana, New Hampshire (1), New Mexico, New York, North Dakota, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Vermont, Virginia, Wisconsin, and Wyoming(1).

The Chairman of the Board of Directors stressed the Board's considered reasons for advocating a Fellowship classification as follows:

(1) Such a classification is necessary to attract medical students to family practice.

(2) The Academy must show its desire to improve standards as a prelude to possible board certification.

Speaking for the creation of fellowships, President George F. Burket, Jr., stressed the program is primarily for young physicians of the future. He mentioned that many of us would not seek fellowship classification but felt it "inconceivable" that any member would knowingly prevent another member from seeking recognition for educational and technical achievement because he himself didn't desire such status.

Discussion indicated that two basically different lines of reasoning prompted negative votes. A number of delegates voting against the proposed amendment stated that they believe the Academy should concentrate all efforts on obtaining an approved certifying board for family practice and that this effort might be abandoned if fellowships were approved. In addition, some delegates voted against the proposal because of a concern that fellowships would change the character of the Academy and be a decisive influence among members.

This matter will surely be brought up again at the Annual Convention in Las Vegas in September and hopefully will pass. If we don't continue to improve our standards, we are bound to deteriorate. The students do desire this classification for status. This is a necessary step in strengthening the Academy, attracting more medical students into family practice, and acquiring a Board of Family Practice recognized by the AMA.

# President's Page

## CORONERS STILL LINGER ON

*In the* Evening Journal *of May 15, 1968, the following editorial appeared. I would like to devote my page to quoting it in its entirety since it expresses so well my feelings on the Coroner System.*

Just a year ago the Governor's Goals Committee recommended — among deletions of public agencies in Delaware — that the office of coroner be abolished for each of the three counties. That was nothing new. At least since the 1930s, efforts have been made to persuade Delaware legislatures to take the ancient and obsolete office out of the Delaware Constitution.

At least *once*, the repealer got as far as the platform of the state Republican Party. Year after year the creation of the office of state medical examiner (for post-mortem inquests) was urged by the state county medical societies and by the state and county bar associations. Finally in 1955 a new law set up the State Board of Post-Mortem Examiners and transferred virtually all the duties of the three coroners to the new medical examiner's office.

But because the county coroner is embedded — some would say featherbedded — in the Constitution, he is still very much in the picture though the duties of his office are more clerical than technical. By long custom, of course, Delaware coroners are funeral directors. It's not that coroners profit greatly from the salaries, which are modest, but politicians shrink from abolishing public jobs, especially those which combine pay, a title, and a minimum of work.

The Medical Society of Delaware was on solid civic and professional ground recently in gaining the resignation of the physician who held the medical seat for New Castle County on the state board of post-mortem examiners. Dr. Wallace M. Johnson is entitled to his own view of the modern usefulness of coroners. But the medical society, which is required by law to provide the unpaid medical members of the board, is entitled — and duty bound — to make sure its representatives are in accord with the society's official stand. And if the Medical Society of Delaware is again urging a constitutional amendment to abolish the coroner system once and for all — we again second that motion.

Daniel J. Preston

# Editorials

## PHYSICIANS VERSUS COST OF MEDICAL CARE

### Some Further Comments

It is frequent these days to read preachment to physicians cautioning them that they are being charged, rightly or wrongly, with great responsibility for the escalated cost of all medical services, including those of hospital services. Physicians do indeed bear a responsibility for their own fees, but in many instances their responsibilities in the present crises of escalating hospital costs are more alleged than real. We think physicians should as a group speak up a bit more to set the record straight.

The unnecessary and thus extravagant ordering of laboratory tests and x-rays is one currently common admonishment. Is promiscuous ordering of these services really commonplace among experienced private physicians? We are sure that a comparison of a similar group of patients cared for exclusively by their own physicians with a group of patients cared for on a teaching service or on the straight ward service would show much more extensive ordering of tests and x-rays in the latter group. The complaint, if it is a legitimate one, is thus being tendered to the wrong group of doctors.

We are also fatigued with hearing about physicians' unwise use of the hospital emergency room for non-emergency services. In many of these visits the emergency exists in the mind of the patient who, having continued his usual routine despite some distressing symptoms for many hours, days, or even weeks, abruptly decides for himself that there and then he must and will be examined immediately, irrespective of the hour or the day. It is frequently the patient, not the doctor, who chooses the emergency room. Too seldom, if ever, is it asked why a visit to the Emergency Room costs so much, without including a doctor's fee. And is it the same hospital planners exhorting all of us to consider moving our offices within or adjacent to the hospital for reasons of economy and modernity who also decry and criticize office-type of present hospital facilities as unwarranted and too expensive for the patient?

Admission to the hospital for diagnostic services continues to be deplored. It is certainly not commonly realized by the numerous subscribers to Blue Cross and Blue Shield that it is specifically prohibited.

As an internist dedicated to the proposition that sick people deserve good medical care—which first of all requires the achievement of a diagnosis in as efficient, orderly, concise, and comfortable a fashion as possible—we believe diagnostic admission is at present not done excessively but actually too infrequently. But the unavailability of hospital beds even for seriously ill patients precludes this type of admission in our locale although those clinics renowned for the facility of such admissions continue to flourish in fame and in respect. Nor is it admissions for diagnosis which inflate the high cost of hospital care since such patients are by definition not apt to be intensely sick patients, and sick patients are the most expensive for a hospital to care for.

The liberal insurance coverage in Delaware to those with Extended Benefits Blue Cross contracts for outpatient laboratory and x-ray studies has in large measure decreased patients' requests for unnecessary hospitalizations; the fantasy that numerous non-sick people are admitted solely for a series of studies is more theoretical than actual in our community where the urgent waiting list has recently numbered eighty or more.

That insurance coverage frequently tempts the doctor to disregard the economic aspect of the patient's medical care is another statement we hear repeatedly and which we disbelieve. On the contrary, insurance coverage frequently enables the physician to breathe a sigh of relief that the patient will not be tempted or forced to refuse the needed care because he cannot afford it. It is fact that the usual period for postoperative recuperation in the hospital for every procedure from cholecystectomy through D and C, and including post-partum stays, has declined steadily and appreciably from what was usual a decade or two ago.

Why are members of the medical profession then continually harassed to do what they are already doing? We do agree "it is the personal responsibility of every physician to see that his patients get the best hospital care at the lowest possible cost." But we believe that too much of the energy involved in considering the way to achieve this is being spent in unwarranted blame of the physician which for some reason he is unprotestingly accepting. Shorter delays within the hospital for scheduling and carrying out diagnostic procedures are more worthy of continued discussion. Twenty-four-hour-a-day hospital services are another. So is continued effort by administrators and physicians who provide in-patient hospital services to keep their charges as low as possible.

The doctor, formerly a public hero, has become a whipping boy: for the insurance companies trying to deny or avoid providing for their customers the services they promise when soliciting business; for the harried hospital administrator, forced like housekeeper or employer to pay more and more for the men and materials he needs; and also for the patient who finds doctors too scarce. We doctors are behaving like the faithful and friendly dog who suffers kicking from the frustrated man who really loves the kindly dog and will, after kicking, stoop down and fondle and praise him. That silly dog should, at least once in a while, bite, not hard, but bite. Or at the very least, bark loudly a few times.

*BZP*

## OUR FAIR SHARE

Last year, roughly one-third of our area physicians did not make a contribution to the United Fund of Northern Delaware. In all, a total of $23,044 was raised from the local physicians or a per capita gift of $69.00. The volunteers of the United Fund state that a Fair Share gift for the professional and executive is 1 to 3 percent of his annual income. Each year the number of those making Fair Share contributions is increasing. For example, our fellow professionals, the attorneys of the area, contributed a per capita gift of $124.

The Delaware State Medical Society strongly endorses the United Fund and its "one campaign — one gift" concept of raising funds for 40 local health, welfare and character-building agencies.

The success of past campaigns shows that the people of Delaware have made a conscious decision to meet the health and welfare needs in this area by expending two dollars in private funds for every one dollar of public funds. It is this voluntary effort that we recognize as being a sign of health in our community. We, as men of medicine, community leaders and citizens, husbands and fathers, must share in this challenge.

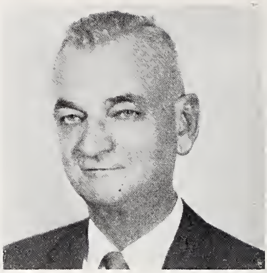
Let us increase our support of this year's United Fund campaign.

## DEMOGRAPHY

Those interested in demography (the science of vital and social statistics) may ask to be put on the mailing list for the Metropolitan Life Insurance Company's monthly *Statistical Bulletin*. Topics in a current issue include population growth in the U. S. (last year the total population in our country increased 1.1% to 200,250,000), murder (our neighbor Balitmore has the third highest rate), and the amount of death benefits the insurance company paid out last year (over $840 million).

# In Memoriam

## GERALD A. BEATTY, M.D.



Dr. Gerald A. Beatty, 66, an outstanding physician in Delaware for many years, died on June 10, 1968. A native of Scranton, Pennsylvania, Dr. Beatty graduated from St. Thomas College, now the University of Scranton, then received his medical degree from Jefferson Medical College in 1930. He then came to Wilmington for his post-graduate medical work, which included work at the Brandywine Sanitarium, now the Bissell Hospital, and entered a life time of practice as a specialist in chest diseases.

His interest in his specialty was reflected by the many changes ultimately made in the treatment of tuberculous patients; and subsequently patients with other chest diseases. His interest in improving the lot of patients and broadening the scope of medical approach to their problems, continued throughout his life. This interest encompassed a rather wide range of medical-social problems, requiring confrontation with disease, politics, and the status quo, to reach his goals. His goals were usually reached.

Dr. Beatty died of heart disease only a few days after retiring as president of The Delaware Tuberculosis and Health Society, a position which he held for sixteen years. He had been president of the Medical Society of Delaware twice, and in 1965 he received The Distinguished Service Award of the Delaware State Medical Society. He was also president of the former Wilmington Board of Health and president of the New Castle County Medical Society. He also served in numerous other capacities, including service as a governor of The American College of Chest Physicians.

Dr. Beatty is survived by his widow, Mrs. Sara Henry Beatty; two daughters, Mrs. Joseph McDevlin and Sally B. Geoffinet, M.D.; thirteen grandchildren, and two brothers and two sisters.

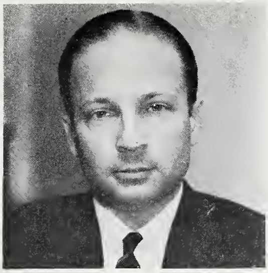
* * *

## LANG WEATHERSBEE ANDERSON, M.D.

Dr. Lang Weathersbee Anderson, 79, a former practitioner in Wilmington, died on June 6, 1968, in Baltimore. For the past fifteen years Dr. Anderson had been living in Williston, South Carolina.

Dr. Anderson was a urologist in Wilmington from 1928 until his retirement in 1952. He had been Chief of Urology at the Veterans Hospital, Elsmere, and the Wilmington General Division. He had served as Vice-President of the New Castle County Medical Society in the 1940's.

After his retirement, Dr. Anderson continued his work, including research, and was president of the Barnwell County Medical Society of South Carolina. He is survived by his widow, Mrs. Elvira R. Anderson; a son, Lang W., Jr., of Frankford, Director of the daytime Care Center program for the State Department of Mental Health; a daughter, Mrs. Emily M. White, Altoona, Pa.; two brothers and eight grandchildren.



### THEODORE N. TAUSIG, M.D.

Dr. Theodore N. Tausig, 46, died on May 28, 1968. He had suffered a heart attack while attending a medical convention in Boston, and died in Peter Bent Brigham Hospital.

Dr. Tausig was a staff psychiatrist at The Fernhook Hygiene Clinic. He had come to Delaware in 1961 as Director of Research and Education with The Department of Mental Health, then became Chief Psychiatrist for dealing with alcoholics. He was active in the State Hospital's self-image experiment, utilizing television to permit patients to observe themselves.

Dr. Tausig was a native of Lancaster, Pa.; his undergraduate work was done at the University of Chicago, and his medical studies taken at the University of Illinois, College of Medicine. He had served his internship in Chicago, then spent three years in the Army, including service with a military government team in Japan. After his army service he served on the staff of Manteo State Hospital, Illinois, and established the first psycho-pharmacological research ward. He had also practiced in Connecticut.

Dr. Tausig is survived by his wife, Mrs. Margaret H. Tausig and a stepson, John; also a stepson, James B. Quackenbush of Wilmington; a grandson; his mother, a sister and brother of Chicago.

* * *

### BRICE S. VALLETT, M.D.

Dr. Brice S. Vallett, 75, died on June 5, 1968, after a short illness. He was born in New Castle, went to the University of Virginia for his medical training, and graduated in 1918. His post-graduate training in urology was taken in Philadelphia.

Dr. Vallett then came to Wilmington and became one of the pioneers in his specialty. He was the originator of several operative procedures for treatment of urological disease; he was the first physician to administer spinal anesthesia in our state. In 1962, he became the first to do a trans-sacral prostatectomy in the United States. Dr. Vallett established the urological residency training program in Delaware and was the first Delaware physician to become certified by the American Board of Urology.

Dr. Vallett was a staff member of all the Wilmington hospitals. He had been president of the Philadelphia Urological Society and a board member of the Middle Atlantic section of The American Urological Association, as well as a member of all of our state and county medical societies. Dr. Vallett was one of our most respected physicians and perhaps our truest gentleman.

Dr. Vallett is survived by two sons, Brice Sewell, Jr., and Richard B. of Wilmington; three daughters, Mrs. Lauren E. Wadmen, Jr., Rochester, N. Y., Mrs. Thomas E. Southwell and Mrs. Edward B. DuPont, both of Wilmington; and ten grandchildren.

# In Brief

**Speakers On "Ask the Doctor"**

Speakers for August, 1968, on the Tuesday Radio program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: August 6, R. Walter Powell, M.D., *Weight Control;* August 13, L. William Ferris, M.D., *Urinary Tract Infections;* August 20, John Gehret, M.D., *Infertility;* August 27, Donald McGee, M.D., *Newborn and Premature Care.*

**Dyslexia**

The first meeting of the World Federation of Neurology's Research Group on Developmental Dyslexia and World Illiteracy was held in Dallas, Texas. The main topic was the drawing up of agreed definitions formulated and unanimously approved: 1. *Specific Developmental Dyslexia.* A disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence, and socio-cultural opportunity. It is dependent upon fundamental cognitive disabilities which are frequently of constitutional origin. 2. *Dyslexia.* A disorder in children who, despite conventional classroom experience, fail to attain the language skills of reading, writing and spelling commensurate with their intellectual abilities. A number of research projects for immediate investigation by members of the Research Group were also decided upon.

**Foreign Medical Graduates**

As of September 1, 1966, there were 14,842 foreign medical graduates enrolled in training programs in U.S. hospitals. These students are classified as foreign medical graduates irrespective of their national origin or current citizenship. Only seven percent of the foreign medical graduates are native born U. S. citizens and an additional three percent are naturalized citizens. Of the twenty countries listed the two largest numbers (in the thousands) were the Phillipines — 3,517 trainees; India — 1,468. They then dropped to below 800 and the rest of the countries are listed down to Lebanon, the smallest number — 126. These twenty countries are those whose medical school graduates constitute the major share (83%) of the foreign medical graduates in the United States training programs.

**AEC Report**

The Division of Isotopes Development of the Atomic Energy Commission has issued a 277-page report on current studies ranging from production of radioisotopes to such applications as air and steam pollution control and nuclear oceanographic techniques. This illustrated report, *Division of Isotopes Development Research and Development Projects,* covers seven major technical program areas: radioisotope production and materials, thermal applications, environmental and ocean sciences, radiation analysis and control, radiation preservation of foods, process radiation and radiation engineering. A limited number of copies are available through this division of the AEC, Washington, D.C., 20545. This publication, TID-24349, is for sale at $3.00 by the Clearinghouse for Federal Scientific and Technical Information, National Bureau of Standards, U.S. Department of Commerce, Springfield, Virginia 22151.

**AMPAC Fellowship**

The American Medical Political Action Committee has established a Fellowship in Business-Government Relations at the American University's School of Business Administration. AMPAC will provide an annual Graduate Fellowship of $4500, plus a $500 grant to the Business-Government Relations Program. The decision of AMPAC Board of Directors to establish this Fellowship was based upon their conviction that the relationship existing between government on one hand and business and professions on the other, are becoming more complex each year. This program conducted by the School of Business Administration is the only academic department of its kind in the country. The committee chairman, Dr. Blair J. Henningsgaard, said, "Important research by our graduate students is helping to develop a more balanced literature and promotes a greater understanding of the nature and contribution of private enterprise to our total society. The students holding these Fellowships over the years will, through their research, make a valuable contribution to this literature."

**Home Health Aides**

The Home Health Aide program sponsored by the Visiting Nurse Association recently celebrated its first birthday. There are now ten Home Health Aides providing personal care, help with meals, and light housework, on a part-time basis to elderly and chronically ill patients. Since the beginning of the program, 2,355 visits were made, for a total of 10,829 hours of Home Health Aide service.

The Aide spends approximately one week in the classroom; teaching continues at the patient's bedside where the Aide works under the supervision of the district nurse.

As with all other VNA services, a physician's written order is required for these services. For further information, please call 658-5205.

**Frauds**

A preliminary injunction was issued to halt the sale of a diathermy device, distributed by the Diapulse Corporation of America, advertised for treatment of 49 diseases and conditions, including tuberculosis, typhoid fever, staph infections, and gangrene.

**Poison Notes**

A group of physicians specializing in child health has endorsed a bill to require special safety containers for drugs, soaps and other household products involved in the poisoning of 500,000 children each year.

The government announced a ban on interstate shipment of household products containing carbon tetrachloride which can be fatal if the fumes are inhaled. The chemical can also cause damage to the liver, kidneys, brain and nervous system, the agency said.

**Geriatrics Grant**

The American Geriatrics Society is offering three, $1,800 grants to resident physicians who want to devote more time and effort to studying the medical problems of the aging. These grants, inaugurated by Lederle Laboratories in 1962, will supplement the salaries the physicians receive and will cover the period between July 1968 and June 1969. Applications for the grants should be addressed to the Chairman, Fellowship Committee, American Geriatrics Society, 10 Columbus Circle, New York, 10019. Deadline for applications is May 15, 1968.

**HEW Notes**

Symptoms, treatment, etc., are discussed in a pamphlet, *Leukemias, Lymphomas, and Multiple Myeloma*, issued by the U. S. Department of HEW. It is the latest in a series of pamphlets on cancer prepared for the general public by the National Cancer Institute. Lymphoma and multiple myeloma are responsive to both radiotherapy and drug treatment. Single copies of this pamphlet are available without charge from the Department of HEW, Washington, D.C. 20402. It can also be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 at $5.00 per 100 copies.

**Library Grant**

It has been announced by the U.S. Public Health Services National Library of Medicine that the Library at the College of Physicians of Philadelphia has been designated as the Mid-Eastern Regional Medical Library. The grant will be used by the College of Physicians Library to create a network of information services to health professions in the Pennsylvania, Delaware, and southern New Jersey areas affording speedier access to the biomedical literature. Service on a regional basis began July 1, 1968. Unlimited interlibrary loan privileges will be made to qualified institutions. In addition the Library will accept requests for computer searches of the store of references to journal articles in the MEDLARS. The MEDLARS service will begin in the spring of 1969.

**Personal Glimpses**

David J. Reinhardt, III, M.D., joined the Beebe Clinic, Lewes, Delaware, as of July 1, 1968, and has moved his residence to that area . . .
Eugene Robinson McNinch, Jr., 26, son of Dr. and Mrs. Eugene R. McNinch of Dover has graduated from the University of Maryland School of Medicine. He is the third generation physician in the family. His paternal grandfather, James R. McNinch, maintains a general practice in Pennsylvania. Young Dr. McNinch will intern in Johnstown, Pa., after which he plans to specialize in obstetrics and gynecology.

**A Delaware "First"**

Delaware was one of the first three states to initiate the "*Why Wait?*" diabetes detection programs. Such programs are now going to be instituted in 13 other cities throughout the nation. The first "*Why Wait?*" ongoing diabetes detection program was launched in Delaware in June, 1967, under the sponsorship of the Delaware Diabetes Association and the Delaware State Board of Health. Some 3614 Delaware citizens have participated in the screening program from its inception through February, 1968. Of the 3614 screenees, 365 were found positive on the initial screen, 168 were positive upon retesting. These 168 positives were then referred to their private physicians for diagnosis and treatment if such diagnosis confirmed that they were diabetics.

**ACP Regional Meeting**

The South Dakota Regional Meeting of the American College of Physicians will be held August 23-24 in Rapid City, South Dakota.

**Medical Pow Wow**

The Cascade County Medical Society of Great Falls, Montana, is sponsoring a *Big Sky Medical Pow Wow,* August 15-17, 1968. Combine a good meeting with a great vacation in Montana. Write: R. E. Wynia, M.D., 203 20th Street South, Great Falls, Mont.

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

## DRUG ABSTRACTS

### XYLOCAINE — Fatal Reaction

Xylocaine hydrochloride (lidocaine hydrochloride-Astra) is currently being administered intravenously in the treatment and prevention of ventricular arrhythmias. Physicians who employ Xylocaine in this manner and for this purpose should first be aware that this procedure has not been approved by the Food and Drug Administration. If, nevertheless, the drug is so employed, the clinician should be thoroughly familiar with the neurotoxic effects of Xylocaine. A patient is described who was given a total of 4.56 gm Xylocaine intravenously over a 24-hour period to control ventricular arrhythmia following myocardial infarction. The earliest sign of toxicity was euphoria, which was followed by heaviness of the chest, mental confusion, twitching of the facial muscles, and petit mal attacks. Xylocaine infusion was continued. A grand mal seizure subsequently occurred followed by respiratory and cardiac arrest. The patient was resuscitated but died 72 hours later.

Crampton, R. S. and Oriscello, R. G.: St. Luke's Hosp. Center, New York, N. Y. (Dr. Crampton), JAMA 204:201, Apr. 15, 1968.

### New Vaccine for Pseudomonas Burn Infections

Mortality from septicemia in severely burned patients may be markedly reduced with the use of a killed-bacteria pseudomonas vaccine and hyperimmune plasma as reported by Dr. Irving Feller of the Department of Surgery, University of Michigan Medical Center.

A recent study in which 100 patients with extensive burns were so treated at University Hospitals in Ann Arbor, resulted in only 5% incidence of Pseudomonas Septicemia and a 4% pseudomonas death rate as compared with a 51% incidence and a 32% death rate in a control group of 41 patients. By definition, "severely burned" meant a wound with over 20% full thickness loss or over 40% total body burns.

At present, all severely burned patients in the University hospitals routinely receive the vaccine alone. It is given to infants and elderly patients with less extensive burns and it is now planned to extend its use to all debilitated patients.

Antibiotic News; Vol. 5, No. 3, March, 1968.

### Tetracycline — Gas Gangrene

Penicillin G is the drug of choice in the treatment and prophylaxis of clostridial infections but problems arise when the patient is allergic to this antibiotic. Tetracycline, recommended by the American College of Surgeons and others as an alternative in such cases, is not a satisfactory substitute. An 18-year-old boy known to be sensitive to penicillin suffered severe lacerations of the hand. Treatment included the administration of 500 mg tetracycline intravenously, twice daily, for four days. During this time the patient's temperature steadily rose and on the fifth day, inspection of the hand and arm revealed extensive clostridial myositis. The arm was amputated above the elbow and the patient recovered. Following this tragedy, 82 consecutive isolates of Cl. welchii were studied to determine their susceptibility to various antibiotics. All strains were sensitive to penicillin G, erythromycin, and chloramphenicol, but 11 were resistant to tetracycline. The authors state: "Because of the recognized risk of blood dyscrasias with chloramphenicol, we recommend that where there is risk of clostridial infection, erythromycin (250 mg every 6 hours, orally or by intravenous injection) should be chosen if penicillin cannot be used."—

*Johnstone, F.R.C. & Cockcroft, W.H. (Vancouver Gen. Hosp., Vancouver, B.C., Canada), Lancet 1:660 (Mar. 30), 1968.*

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*This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

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NUMBER 8

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# ISOSORBIDE (HYDRONOL*)

## An Oral Osmotic Diuretic**

• This report summarizes results of initial clinical trials with isosorbide and suggests its potential usefulness in certain disorders.

Harold H. Orvis, M.D.
Kazuo K. Kimura, M.D.

In a preceding paper,[1] information concerning the chemistry of isosorbide and the discovery of its diuretic properties has been presented. Furthermore, animal studies of absorption, dose/response relationships, and toxicity were reviewed. The conclusion was that isosorbide is an effective oral osmotic diuretic and is considered safe for clinical investigation.

Preliminary clinical reports suggested that isosorbide therapy may be effective in hydrocephalus, glaucoma and cirrhosis with ascites. However, hypertension appeared unresponsive on the basis of a trial in the more severe type with renal impairment. Our subsequent efforts were directed toward extending existing studies and exploring new therapeutic areas for isosorbide. This report summarizes the experience to date of a number of clinical investigations undertaken to achieve these objectives.

### Dosage Studies

It was established by Troncale and associates[2] that single doses of one gram per kilogram could initiate diuresis in normal volunteers. The usefulness of higher doses or the feasibility of using divided doses were investigated. Nodine and associates[3] have reported dose/response studies of isosorbide in normal volunteers studied under controlled dietary conditions. In Figure 1 are shown corrected values for 24-hour urine and osmolar excretion after isosorbide administration. (Each observation reported is the experimental value minus the appropriate control value obtained on the preceding day.) It is observed that the greatest urine output was achieved with the single greatest dose of drug and that the efficacy was lessened by using multiple doses. It is recognized that these studies are in normal subjects and that other dosage schedules may be necessary in patients.

### Clinical Trials

It should be realized that the studies summarized herein are, for the most part, the first in their therapeutic areas. We are not making therapeutic claims at this time but wish to identify areas that merit further clinical evaluation. Those to be discussed are shown in Table 1.

It might be convenient to arbitrarily divide

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Dr. Orvis is Director of Clinical Investigation and Dr. Kimura is Director of Medical Research, Atlas Chemical Industries, Inc., Wilmington, Delaware.

*Trademark, Atlas Chemical Industries, Inc., Wilmington, Del.

**Presented at the Seventh Delaware Meeting, The American College of Physicians, Wilmington, Delaware, February 24, 1968.

FIGURE 1

DOSAGE EFFECTS FOR 24 HOURS AFTER ISOSORBIDE ADMINISTRATION

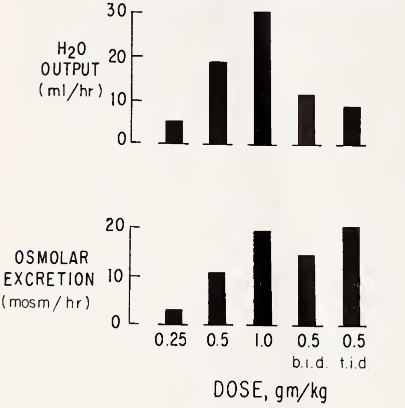


FIGURE 2

FALL IN INTRAOCULAR PRESSURE IN A PATIENT WITH SECONDARY GLAUCOMA FOLLOWING ORAL ISOSORBIDE

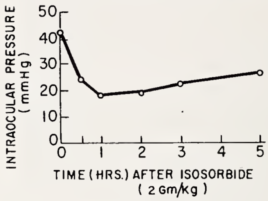


**Table 1**

**Areas of Clinical Trials With Isosorbide**

1. Glaucoma
2. Cerebral Edema
3. Hydrocephalus
4. Cirrhosis
5. Cardiovascular Disease
6. Renal Disease

them into illnesses of the central nervous system (1 through 3) and more general medical disorders (4 through 6).

*A. Glaucoma*

Studies of isosorbide therapy in glaucoma have been published by Becker and associates.[4] It is accepted by ophthalmologists that intraocular pressures can be dramatically lowered by hypertonic solutions. Hypertonic solutions are also useful to soften the eyes prior to ophthalmologic surgery (including routine cataract operations). Agents presently available for this purpose are mannitol, urea and glycerol. Only the latter is used orally but it has the unpleasant side effects of nausea and vomiting. After a preliminary and successful trial in animals, Becker and associates evaluated isosorbide in nine cataract patients at the time of surgery and in ten patients with glaucoma. In each instance after the administration of one to two grams per kilogram of isosorbide, there was a measured drop in intraocular pressure. The minimal pressure was achieved between one and two hours and this effect lasted for several hours. Figure 2 illustrates a representative study in a patient with secondary glaucoma.

These investigators reported two instances of nausea in the 19 single-dose trials. It was, however, noted that four subjects were treated who were, in fact, intolerant of glycerol because of nausea and vomiting. Further studies in this therapeutic area are presently in progress.

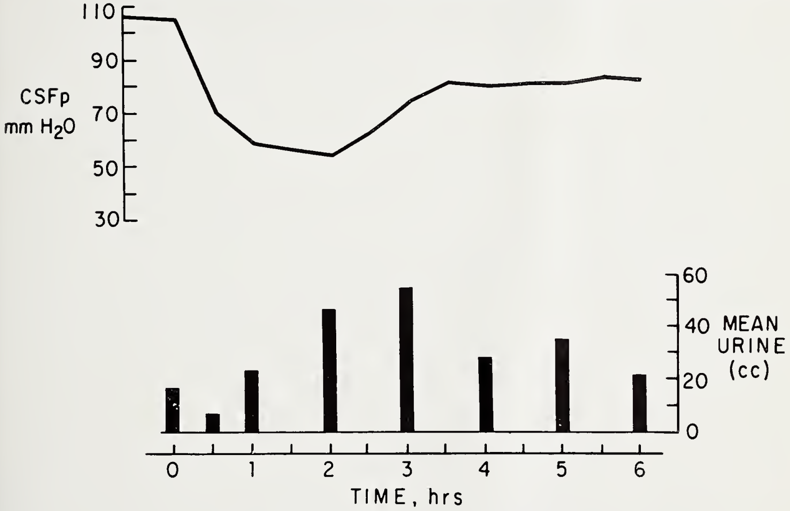
*B. Cerebral Edema*

Data published by Wise indicated that isosorbide effectively lowers cerebral spinal fluid pressure, decreases brain mass and produces osmotic diuresis in experimental animals.[5] In Figure 3 is shown the mean values obtained employing doses of three grams per kilogram in four fasting dogs. Note the drop in cerebral spinal fluid pressure, reaching minimal values at two hours, and the associated rise in urine output.

In a subsequent paper,[6] Wise and associates reported results of therapy with isosorbide administered in doses of 1½ to 3 grams per kilogram to 11 patients with neurological disorders characterized by increased cerebrospinal fluid pressures. These included pseudo-

FIGURE 3

EFFECTS OF ORAL ISOSORBIDE IN 4 FASTING DOGS



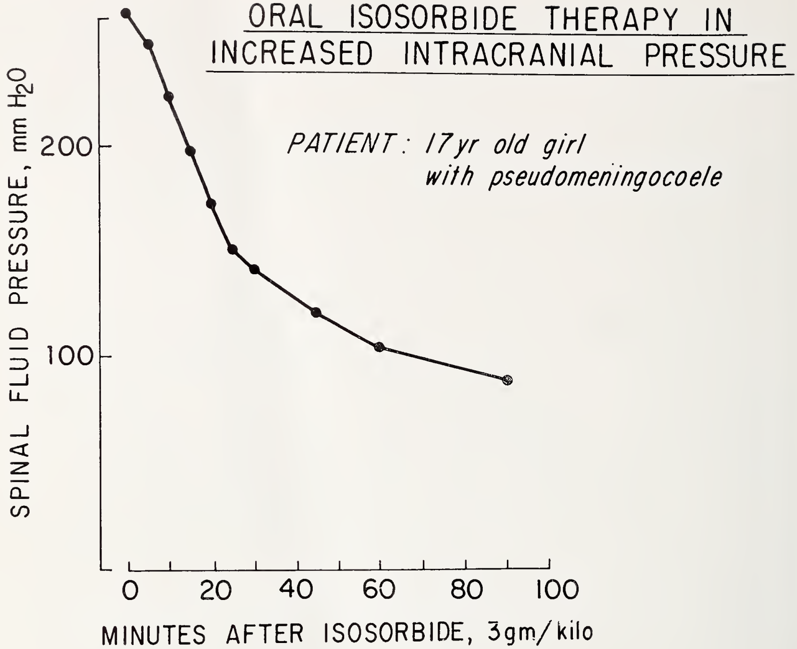
tumor cerebri, severe head injuries and post-surgical patients. In eight patients where CSF pressure measurements were followed, oral isosorbide was effective in lowering the pressure without creating any serious side effects. Data from an additional patient given a dose of three grams per kilogram are shown in Figure 4. It may be noted that a substantial drop in pressure ensued. Clinically, this was associated with softening of a pseudomeningocoele which became almost flat after each dose but returned to its original size in six to eight hours.

The action in lowering CSF pressure was stated to be prompt and correlated well with the onset of elevated serum osmolarity (which reached its peak between 40 and 90 minutes after isosorbide administration). The authors indicated that isosorbide does not appear to have any advantage over mannitol for acute administration or when the alimentary route must be avoided. However, for repeated dosage they felt that oral isosorbide might be very useful.

### *C. Hydrocephalus*

Shurtleff and co-workers have explored the possibility of employing isosorbide to reduce ventricular fluid pressure in hydrocephalic children. If present neurosurgical procedures for this disorder were fully adequate, there would still exist a role for satisfactory medical therapy to lower pressure for diagnostic purposes or while a patient is awaiting surgery. Starting with terminal types of hydrocephalus not candidates for surgical treatment, Shurtleff and associates have completed therapeutic trials in 21 patients[7] and 11 of these have been summarized recently.[8] Their data include much material on spontaneous variation and methodology. Indeed, in the course of their work, a closed system for ventricular fluid manometry was developed which, with multi-channel equipment, could be used to

FIGURE 4



obtain simultaneous measurements with other physiologic events such as heart rate, respiratory rate and venous pressure. Also obtained were serial blood and ventricular fluid levels of drug, osmolar concentrations and electrolyte composition.

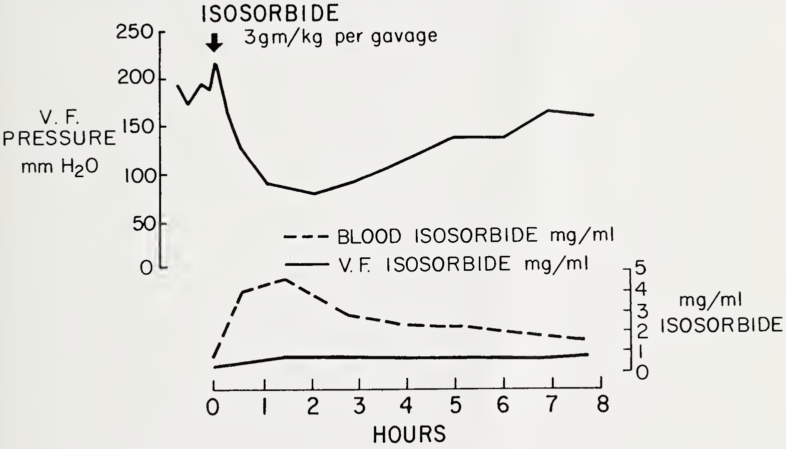
The effect of a single dose of oral isosorbide on ventricular fluid pressure is illustrated in Figure 5. Following a three gram per kilogram dose of isosorbide, given by nasal gastric tube, there was an immediate drop in ventricular fluid pressure from a baseline of 180 mmHg to a low of 82 by two hours. This lower pressure continued over the next six hours during which time there was a slow return toward the baseline. The lower graph relates these findings to the associated changes in isosorbide level in blood and ventricular fluid.

Responses in the first 21 patients to single doses have ranged from 19 to 91 percent decrease in pressure (for all but two which were unresponsive). Multiple doses of oral isosorbide produced a cumulative effect with sustained reduction of ventricular fluid pressure. An example of this multiple dose effect is shown in Figure 6. It may be seen that following isosorbide administered orally every eight hours, the ventricular fluid pressure dropped from a mean baseline value of 110 millimeters to a low of 20. This lower pressure was sustained 18 hours after the last dose of drug and the pressure increased toward but did not exceed baseline levels 56 hours after the last dose.

The authors noted that continuous administration of isosorbide caused gradual hyperosmolarity with a significant increase in serum

FIGURE 5

EFFECT OF SINGLE DOSE OF ISOSORBIDE ON VENTRICULAR FLUID PRESSURE



sodium by 72 hours. Therefore, longer trials have been undertaken cautiously and the present approach is to administer a natruretic drug periodically to attempt control of the hypernatremia. It is noteworthy that an unexpected and perhaps important related clinical finding has been the rapid healing of weeping meningomyeloceles in several patients.

*D. Cirrhosis*

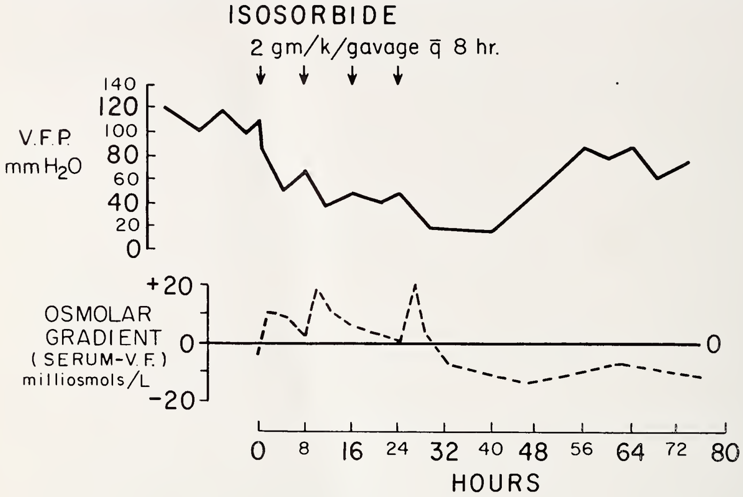
Gagnon and associates[9] have published data comparing oral isosorbide and intravenous mannitol as adjuncts to other diuretics in the treatment of 21 hospitalized patients with cirrhosis (and ascites). Their rationale for such treatment was the potentiation of the effect of thiazides, spironolactone and mercurial diuretics, the possible reduction of untoward effects of the potent diuretics and the promotion of excretion of free water. Representative data from one patient, who received constant doses of a thiazide and spironolactone throughout, are graphed in Figure 7. Shown is the response in water and sodium excretion to a single dose of oral isosorbide (one gram per kilogram) and a single comparable does of intravenous mannitol (1.3 grams per kilogram). Note the similarity in increase of total urine volume and sodium excretion for the corresponding days. These investigators concluded that both agents produced water diuresis and that oral isosorbide was of about the same effectiveness as intravenous mannitol. No hematologic, hepatic or renal toxicity was encountered.

The cirrhosis treatment studies were subsequently conducted in out-patients.[10] In this study isosorbide and hydrochlorothiazide were used alone and in combination for 17 trials in 14 patients. Each of the three treatment periods as well as the control period was of 14-days duration and during the entire study all patients were maintained on salt-restricted diets. Weekly evaluations of weight and serum and urine chemistries were obtained from each patient. The overall results of treatment with respect to weight is shown in Table 2.

On the basis of weight loss, hydrochlorothiazide was more effective for the entire group.

FIGURE 6

EFFECT OF MULTIPLE DOSES OF ISOSORBIDE ON VENTRICULAR FLUID PRESSURE



Isosorbide did produce greater loss in six of the 14 patients however. It was noted that serum electrolytes and urea nitrogen showed significantly more adverse changes with hydrochlorothiazide than with isosorbide. When used in combination, the latter seemed to lessen these changes. This was more striking in the case of serum urea nitrogen and the pertinent data are shown in Table 3.

These investigators are presently employing isosorbide in the labile type of cirrhotic patient often tipped into hepatic coma by vigorous diuretic regimens.

*E. Cardiovascular Diseases*

Treatment of congestive heart failure is presently in an exploratory phase. On the basis of preliminary observations in hospitalized patients, Evans[11] data suggests that the diuresis obtainable with isosorbide alone may be inadequate. In Table 4 are given the results of four short-term therapeutic trials.

**Table 2**

**Net Weight Change In 14 Cirrhotic Patients (Lbs.)**

| | |
|---|---|
| Control Period | +4.9 |
| Hydrochlorothiazide, 50 mg, twice a day | —4.0 |
| Isosorbide, 1 gm/kg, twice a day | —1.0 |
| Hydrochlorothiazide + Isosorbide | —4.75 |

**Table 3**

**Serum Urea Nitrogen During Diuretic Therapy**

*Number of Observed Increases Greater Than 5 mg/100 ml*

| | Trials |
|---|---|
| • Hydrochlorothiazide, 50 mg, twice a day | 8 of 17 |
| • Isosorbide, 1 gm/kg, twice a day | 0 of 17 |
| • Hydrochlorothiazide + Isosorbide | 2 of 17 |

FIGURE 7

RESPONSE TO A SINGLE DOSE OF ORAL ISOSORBIDE (1 gm/Kg) AND IV MANNITOL (1.3gm/Kg)

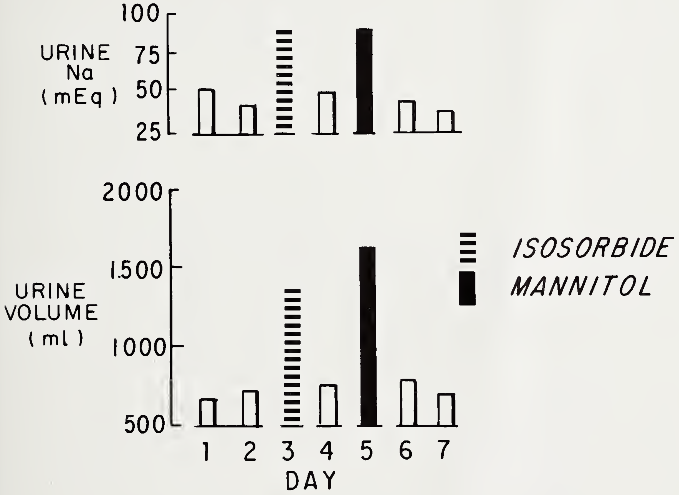


**Table 4**
**Initial Clinical Trials of Isosorbide**
**In Four Cardiac Patients**

- *Each Trial Was 100 gm Daily For Four Days*

| Age Sex | Diagnosis | Edema | Investigator Impression of Rx | W. Loss In Lbs. |
|---|---|---|---|---|
| 74 F | CHD | 4+ | No Effect | 5 |
| 65 M | CHF | 1+ | No Effect | 2 |
| 47 F | RHD | 1+ | Min. Improve'nt | 1-½ |
| 68 M | CHD | 2+ | Sl. Diuresis | 4-½ |

**Table 5**
**Isosorbide Therapy In**
**Lupus Nephritis**
*Clearance Measurements (ml/min)*

| | Pre-Drug | On-Drug |
|---|---|---|
| Inulin | 41.1 | 44.5 |
| PAH | 250.8 | 501.1 |
| $T^cH_2O$ | 0.55 | 1.7 |

Although some diuresis as evidenced by weight loss did occur, it was the opinion of this investigator that this was of doubtful significance.

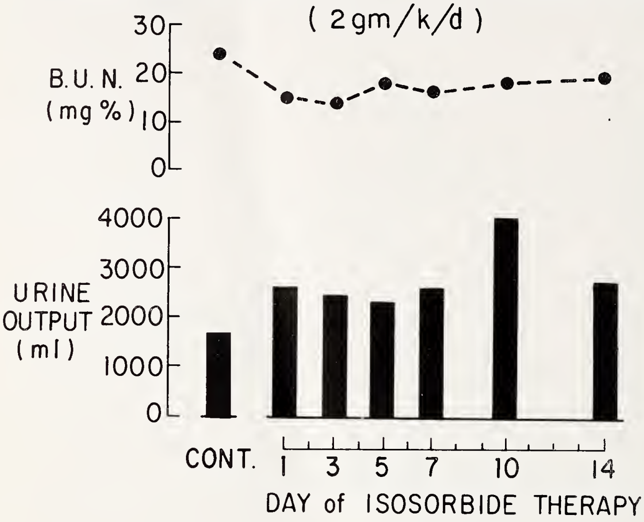
In the case of hypertension, therapeutic trials in mild, moderate and severe hypertensives tend to produce diuresis but blood pressures are not significantly altered. Recognizing that isosorbide primarily effects water and usually does not produce natruresis, this lack of a hypotensive effect is indeed consistent with the drug action. The possibility that here again adjunctive use with other diuretics may favorably influence uric acid excretion, potassium excretion and blood urea nitrogen is presently under investigation.

### *F. Renal Disease*

Again, therapeutic trials are in an exploratory phase. Kramer[12] has treated four patients with a variety of disorders. The first patient had biopsy established acute and sub-

FIGURE 8

ISOSORBIDE THERAPY IN LUPUS NEPHRITIS



acute glomerulonephritis and on the basis of history the illness was presumed to be of one month's duration. During the first month of therapy, employing daily doses of isosorbide of grams per kilogram, the patient maintained a five-pound weight loss and was edema-free. There were no appreciable changes in serum chemistries. The second patient had diabetic glomerulosclerosis and on dose of one-half to one gram per kilogram, over a six-month period, was reported to be edema-free. No appreciable electrolyte changes were apparent in her serum or urine during this time.

The third patient had biopsy changes of proliferative and membraneous glomerulonephritis consistent with disseminated lupus. She was treated with isosorbide two grams per kilogram daily during two weeks of hospitalization. As may be seen in Figure 8 a rise in urine output and slight fall in blood urea nitrogen occurred during this period. Renal function tests in this patient obtained before and on the 14th day of therapy were of interest in that an increase in PAH and free water clearance occurred and these findings are given in Table 5.

**Table 6**

**Average Serum Sodium & Potassium In 15 Patients on Hydronol Therapy (mEq/1)**

| | Control | Day 2 & 3 | Day 5 & 6 | Day 7 & 8 | Day 9 -12 |
|---|---|---|---|---|---|
| Sodium | 137 | 139 | 139 | 142 | 136 |
| Potassium | 4.3 | 4.3 | 4.3 | 4.0 | 4.0 |

The last patient represented an interesting application of isosorbide in that it was employed to maintain serum osmolarity after periodic hemodialysis in a patient with chronic glomerulonephritis. At doses of only 0.1 to 0.2 grams per kilogram daily the patient's urine output was approximately doubled.

### Adverse Reactions

In approximately 100 patient trials for which reports have been submitted, isosorbide has been relatively free of adverse effects whether the latter term is applied either to the area of fluid and electrolyte balance or to unrelated body systems and processes. In Table 6 are summarized changes in serum sodium and potassium in a variety of patients receiving isosorbide for periods of time up to 12 days. These are relatively small and were statistically not significant.

The most common side effect reported by patients is occasional nausea generally following high dosages. By chilling the medication, or serving over ice, and allowing the patient 10 or 15 minutes to drink it, continued therapy has been possible in most instances. Diarrhea has been reported and seems related to the size of the dose. This may be lessened by administering no more than a gram per kilogram in a single dose. When large dosages of isosorbide are required, administration in divided doses may be necessary.

It would be premature to draw conclusions from the research reports that have been reviewed. Additional studies are needed and are being conducted in most of the areas discussed.

On the basis of these preliminary observations it is suggested that:

A. Isosorbide is an effective oral osmotic diuretic that is relatively free from side effects.

B. The diuresis achieved with isosorbide is most effective in conditions not characterized by abnormal sodium retention.

C. Where sodium retention is a significant part of the clinical picture, isosorbide therapy would probably be most useful as an adjunct to a thiazide or other natruretic agent.

D. Further trials of combined therapy may also be useful in defining the extent to which isosorbide protects against increases in BUN commonly encountered with the thiazides.

E. Certain abnormalities of the eyes and central nervous system seem to be substantially lessened during isosorbide therapy. Further clinical trials are warranted in this area.

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## WHY HOMING PIGEONS HOME

Some insight into the role of brain glycoproteins in memory and learning has been gained by a Boston University biochemist, Dr. Samuel Bogoch. He has identified three key glycoproteins in memory experiments with carrier pigeons. He believes that two of these proteins may have something to do with laying down short-term memory traces. The third is needed for lasting memory. Dr. Bogoch says similar glycoproteins are found in man and he theorizes that the capacity to learn is related to the capacity to synthesize these molecules. (Source: *Chem. and Eng News*; May 27, 1968.)

# NEUROSURGICAL ASPECTS OF VERTIGO

• Only rarely is vertigo of sufficient severity to require intracranial section of the vestibular nerve. The author presents the indications that point to neurosurgery and the limitations and dangers involved.

Frederick A. Simeone, M.D.

The structures which mediate the sensation of vertigo are composed of the semicircular canals, the vestibular nerves, the vestibular nuclei, and its ascending and descending connections in the brain stem and cerebellum. Further, there are projections which ultimately terminate in the temporal lobe and are probably responsible for the conscious awareness of vertigo.

I would now like to consider the central connections; that is, from the input of the vestibular nerve to other loci in the brain. The fibers of the vestibular nerve end in four contiguous nuclear masses in the medulla near its junction with the pons. These are the medical, superior, lateral, and spinal vestibular nuclei (some fibers are thought to pass directly into the cerebellum). From these nuclei, impulse descend or ascend in the central nervous system.

### Descending Connections

Descending fibers communicate through the medical longitudinal fasciculus to the motor nuclei which supply the neck muscles. These impulses account for labyrinthine reflexes in relation to posture of the head. Others become the vestibulo-spinal tract.

### Ascending Connections

These are chiefly to the cerebellum, and to the reticular formation of the brain stem via the median longitudinal fasciculus. The cerebellar fibers end in the most primitive embryologic portions of the cerebellum. Other fibers communicate with the extraocular muscle motor nuclei. Labyrinthine impulses also reach the superior temporal gyrus and part of the frontal lobe.

### Organic Causes of Vertigo

Certain conditions of the central nervous system produce vertigo as a prominent symptom, and a differential diagnosis is often possible through standard diagnostic techniques. These will be discussed in a peripheral to a central orientation starting with the vestibular nerve.

1. *Acoustic Neuroma:* An acoustic neuroma is a slowly growing benign tumor of the vestibular portion of the 8th nerve which usually grows near the internal acoustic meatus. In my experience vertigo is not usually the predominant presenting symptom, but in certain cases the patient will complain of episodic vertiginous feelings, and this highly treatable lesion should always be excluded when its presence is conceivably possible. From a neurosurgical viewpoint, after the audiologic and caloric studies are corroborative, plesiotomography of the internal auditory canal is quite helpful. This study of serial x-ray "sections" through the petrous bone offers more than plain x-ray techniques. In the diagnosis of a small acoustic neuroma, positive contrast encephalography is ultimately the

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Dr. Simeone is Assistant Professor of Neurosurgery, Temple University Medical School, Philadelphia, Pennsylvania.

diagnostic study of choice. This is done by injecting a small amount of radiographic contrast medium in the spinal canal and, by positioning the head, outlining the internal acoustic meatus region.

Again it is important to emphasize the necessity to diagnose this tumor early when tinnitus, vertigo and hearing loss may be the only symptomatic clues. As this tumor grows in size, it insidiously compresses the central nervous system and subsequently, its removal may be technically hazardous. With the development of microsurgical techniques, we have been able to remove the smaller acoustic neuromas with preservation of the facial nerve. When the tumor is significantly large, preservation of the facial nerve is virtually impossible if complete removal of the tumor is to be achieved. A peripheral facial nerve palsy is a permanently disfiguring deficit which immediately sets the patient apart from other members of society. With a small acoustic neuroma, and the operating microscope, preservation of the facial nerve has become a more or less routine technical accomplishment.

2. *Vascular Malformations:* Rarely aneurysms or other deformities of cerebeller vessels may lie in proximity to the vestibular nerve and, because of their pulsation or bleeding, can lead to episodic vertigo. When the aneurysm ruptures, the vertigo may be very severe and associated with sharp occipital pain. The presence of bloody spinal fluid under these circumstances leads to vertebral-basilar arteriography at which time the diagnosis and localization can be made specifically.

3. *Disorders of the Vertebral Artery:* These are of several types:

(a) Occlusion of the proximal vertebral artery. This lesion is usually due to atherosclerosis and is most often seen at the origin of the vertebral artery from the brachio cephalic vessels. The vertigo is particularly noted when the patient changes position, that is, from lying to standing, etc. If occlusion of this vessel becomes complete, the patient may experience persistent focal neurologic deficit, such as a Horner's syndrome, paralysis of the contralateral side of the body, numbness of the ipsilateral side of the face, persistent nystagmus, etc. Often vertigo will spontaneously subside as other divisions of the cerebellar circulation take over for the diseased vertebral artery.

(b) Subclavian Steal Syndrome: A syndrome has recently been described which is of fascinating clinical significance. The lesion is an occlusion of the left subclavian artery just proximal to the take off of the left vertebral artery. Blood leaving the heart is unable to get to the left vertebral artery or the left subclavian artery by normal channels. Since the two vertebral arteries communicate at their junction to form the basilar artery, blood going up the right vertebral artery passes down the left vertebral artery and out into the left arm. This is because of the occlusion proximal to the left vertebral artery significantly lowers the pressure in that structure. When the left arm is exercised and requires more blood, the patient may experience episodes of vertigo which can lead to temporary loss of consciousness. The clinical syndrome is a patient who may have peripheral signs of arteriosclerosis, who experiences episodes of severe vertigo, occasionally associated with loss of consciousness, particularly when he is actively using the left arm. The diagnosis is usually confirmed at arteriography when in addition to demonstration of the subclavian artery occlusion, contrast material can be followed up the right vertebral artery and down the left vertebral artery in a retrograde fashion. This lesion is amenable to surgical correction of the occlusion or, if necessary, bypass surgery to the left subclavian artery.

4. *Spondylitic Compression of the Vertebral Artery*: Cervical Spondylosis is a pathologic accumulation of bone and fibrocartilage at the intervertebral disc spaces due to chronic degeneration of the intervertebral disc. Some degree of cervical spondylosis is seen on most cervical spine x-rays in patients over 50. Under certain circumstances, however, the degree of pathological bone formation, (sometimes called osteoarthritis) can be severe enough to compress the vertebral artery as it travels to the brain through its bony canal

in the cervical spine. The compression is aggravated by head turning. The clinical syndrome then consists of the patient who does not ordinarily experience vertigo unless he turns his head to one side and holds it there for a short period of time. Again in severe cases, loss of consciousness may be associated with this head turning maneuver. Aggravation of nystagmus with head turning on electronystagmography is more suggestive, but the definitive study of choice is vertebral arteriography which is amplified by turning the head during the study. Although the recognition of this lesion is relatively new, there is some evidence that surgical decompression of the vertebral artery at this pressure point leads to the alleviation of symptoms.

5. *Lesions of the Basilar Artery:* The basilar artery is apparently prone to artherosclerotic narrowing. If this narrowing is significant anywhere along the course of the basilar artery, intermittent vertiginous episodes may be produced by alteration of flow through this vessel. In general, basilar artery stenosis is associated with more generalized cerebral arteriosclerosis. There is no treatment for this condition. Cerebro-vasodilators and anticoagulants are thought to be of no use. A rare case of evolving thrombosis of the vertebral artery with progressive vertigo and neurologic deficit might be diagnosed with sufficient promptness to warrant the use of anticoagulation. A spinal puncture should be performed to rule out hemorrhage as the cause of the patient's symptoms before anticoagulation is begun. Since complete occlusion of the vertebral basilar system can be fatal, some feel there is justification in rapid anticoagulation under this relatively unusual circumstance though no controlled studies verify this.

6. *Degenerative Diseases:* The plaque of multiple sclerosis can occur in virtually any part of the central nervous system. When these involve the vestibular nuclei or their projection systems, vertigo can be a symptom. Differential diagnosis in this case depends on the presence or absence of significantly prolonged exacerbations and remissions associated with other characteristic findings of multiple sclerosis. An exacerbation consists of repeated episodes of vertigo over an interval of, say, two weeks following which there is complete abatement only to return at some time in the future. Other degenerative central nervous system diseases which involve the parenchyma of the brain can also be associated with vertigo.

### Infectious Processes

Pyogenic abscesses from granulomas, cholesteatomas, and other lesions originating around the petrous pyramid can invade the cerebellopontine angle to involve the brain stem and the vestibular nerve. Bacterial or fungal meningitis can result in a constricting arachnoidal reaction which can also affect the vertibular nerve.

Viral diseases which have an encephalomyelitic phase can affect the vestibular nuclei early in their course. This is particularly true in poliomyelitis where vertigo and nystagmus are observed during the initial phases of the disease. There again the diagnosis depends on corroborative evidence of viral encephalitis, particularly spinal fluid examination. Certain relatively mild viral infections apparently affect either the peripheral or central vestibular mechanisms and under these circumstances, the patient may experience a few days of episodic vertigo before developing the symptoms of a "cold." Sporadic outbursts of epidemic vertigo have been described which were felt to be caused by a rather discrete encephalitis. Some of these cases cleared spontaneously where others have developed a full blown encephalitis.

### Congenital Defect

In basilar impression the structures in the posterior fossa of the brain in the vicinity of the pons and the medulla are distorted sufficiently to produce mechanical changes in the 8th nerve to the brain stem. Chronic vertigo is sometimes seen in these patients. Surgical correction of the bony abnormalities is recommended when other symptoms of brain stem compression are present.

### Vertiginous Epilepsy

Vertiginous epilepsy is a relatively rare condition in which the vertigo develops as an aura to an epileptic attack. The epileptic focus is usually in the posterior half of the superior temporal gyrus or at the temporoparietal junction. The patient may experience severe vertigo of short duration followed by loss of consciousness and amnesia; followed usually by a rapid and complete recovery. Electroencephalography may demonstrate the epiletiogenic focus. If there is no other explanation for the seizure focus, the patient must be considered a brain tumor suspect and appropriate diagnostic studies are in order.

### General Causes

Syringomyelia, cerebellar tumors and hydrocephalus are surgical conditions in which correction at an optimal time in the clinical course can lead to the relief of vertigo, although the surgery is not done solely to relieve this symptom. In general, however, vertigo is a lesser part of these syndromes and differential diagnosis really depends on the more serious presenting symptoms.

Only rarely is vertigo of sufficient severity to require intracranial section of the vestibular nerve. In an ordinary modern neurosurgical practice, this procedure may be done less than once every five years. The indications are: A patient who is experiencing a severe unremitting vertigo, the etiology of which is usually Meniere's disease, which seriously affects his daily life. The attacks must be regular and they must have been shown to be unresponsive to all standard forms of therapy. The patient must understand that deafness will likely follow the operation. The source of the vertigo must be clearly lateralized so there is no doubt as to which vestibular nerve to cut. Even under highly selective circumstances less than 50 percent of patients subjected to vestibular nerves section in one series were permanently benefited.

## DOCTOR'S DECISION: WITH DISCIPLINED FIDELITY

Since 1954, when the first kidney transplant was performed, physicians have been wrestling with the problem of patient selection (for organ transplant).

Until artificial organs become a reality — and this is a long, long way off — there will always be more patients with diseased organs than there will be suitable transplant replacements.

Compounding this basic truth of supply and demand is another. In heart transplant surgery, there is no margin for error. If the procedure fails, the patient cannot be returned to a standby artificial apparatus, such as an artificial kidney, to maintain life and vital functions until a new organ is available for a second trial. The patient is lost — and the donor organ is wasted . . .

But we must not allow this concern to interfere with the individual physician's sense of patient responsibility. This prerogative is basic to the practice of the art and science of medicine. The physician has been trained to diagnose his patient and to select and administer the treatment of choice with "disciplined fidelity." Such decisions should remain his in their entirety . . .

It was not very long ago that the presence of life was equated with the presence of the heartbeat. Today, failure of the heart to beat is identified only as a medical syndrome — cardiac arrest. The absence of a heartbeat is no longer synonymous with the fact that death has occurred, because drugs and mechanical instruments are now available which will restore the heartbeat in many instances.

Methods are also available to aid failing circulation and to artificially assist respiration when these vital functions fail. Because of these recent advances, which in truth have made death to some extent a reversible phenomenon, there is a serious need for a new definition of terms.

I personally feel that the question of artificially supporting an individual's life by mechanical means has to be decided on an individual basis by the patient's attending physician. I do not feel that the possible need for donor organs or any other consideration unrelated to that patient's welfare will influence the responsible physician in making his decision . . . *Luther L. Terry, M.D.; All are potential heart transplant donors, The Philadelphia Sunday Bulletin, March 17, 1968.*

# DIZZINESS AND VERTIGO

## Medical Aspects

**● The following article deals with a common problem in practice. It is hoped that this purely clinical approach will offer a change of pace from some of the current medical literature dealing with the unusual and exotic on a cellular level.**

ALBERT J. FINESTONE, M.D.

The problem of a "dizzy patient" can be one of the most challenging and frustrating problems which the physician has to face. When a patient walks into a physician's office and tells the physician, "I am dizzy," diagnosis can be a most complex and perplexing problem. The only way to deal with this difficult situation is by an organized approach. The following outlines a program which has been helpful in dealing with this type of clinical problem.

The first consideration is the definition of terms. By dizziness is meant a sensation of light-headedness or unsteadiness. On the other hand, vertigo implies a sensation of motion; either subjective vertigo, where the subject feels that he is moving, or objective vertigo, where the objects about the patient appear to be moving.

Beside dizziness and vertigo, one must consider weakness, asthenia, syncope and depression. Weakness as a symptom generally means lassitude and fatigue and implies a feeling of weariness, tiredness, "all-in" and "no pep." Overwork can be a cause and the history can delineate this in short order by specific questions concerning the patient's work habits and sleep habits. Many physicians know this symptom from personal experience. Psychiatric causes of lassitude and fatigue frequently occur; characteristically, these patients feel their best at the end of the day. Chronic infections, endocrine disorders, and anemias can all be responsible for this symptom as well as chronic intoxication. It is most important that a drug history be obtained in all of these patients. Patients may be taking sedatives and tranquillizers from other physicians, or even proprietary drugs which may be responsible for weakness. Industrial intoxications and chronic alcoholism must also be considered as causes for weakness.

Asthenia is another problem which has to be considered and in this situation, objective muscle weakness must be demonstrated. Terminal disease, senility, prolonged bedrest, and primary muscle problems such as myopathies and myasthenia should also be considered in this category as well as acute fatigue resulting from acute infections and acute fluid balance problems.

Another category in this group of problems is syncope. The Cleveland Clinic some years ago studied 510 patients with syncope. It is of interest that 298 had vasovagal syncope, 15 had hypersensitive carotid sinus syncope and 9 had aortic stenosis as a definite cause of the syncope, indicating the relative frequency with which these problems are met. Depression, of course, can be in the picture and when a patient tells you that he is dizzy or light-headed, he may really mean that he is depressed and anxious. The history as well as observation of the patient will indicate the true nature of the problem.

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**Vertigo**

The history will indicate whether the patient has true vertigo. If he does have vertigo, one must consider whether peripheral mechanisms are responsibile (such as abnormalities of the ocular muscles, semi-circular canals or vestibular nerves) or if central abnormalities of the vestibular nuclei in the medulla, or tracts within the brain stem, cerebellum or cerebrum are responsible. It is frequently possible to differentiate clinically central from peripheral vertigo. Table 1 indicates the differences between peripheral and central vertigo.

**Dizziness**

Dizziness, which means a sensation of lightheadedness, can best be understood by considering the systemic medical causes of dizziness.

I. *Vascular Factors*

Arteriosclerosis is certainly a common cause of dizziness. The clinician must be cautious in making this diagnosis which is unfortunately all too frequently made on the basis of the patient's age only. Objective findings and even arteriography may be indicated before a specific diagnosis of cerebral arteriosclerosis is made on the basis of a single symptom, dizziness.

Hypertension can produce dizziness. All physicians know that there is frequently little correlation between the severity of the hypertension and the degree of symptomatology. Some of the most severe hypertension engenders no symptoms and some patients with the most mild elevations in blood pressure have severe symptoms, strongly suggesting that tension and not hypertension may be responsible for the disability. The exact mechanism of the dizziness with hypertension is unknown.

Too many or too few red cells can produce the symptoms of dizziness. In polycythemia, there is slowing of the cerebral blood flow due to increased viscosity. Anemia causes impairment in cerebral oxygenation with resultant symptomatology. Excess platelets can produce increased viscosity and also impair cerebral blood flow. The "dysproteinosis syndromes" such as Waldenstrom's Syndrome can also produce dizziness.

Sweating, burns, or excessive gastrointestinal losses from diarrhea, vomiting or malabsorption can cause dizziness due to abnormalities in blood volume. Chronic renal disease with impairment in renal concentrating power can also alter the blood volume as may endocrine abnormalities such as uncontrolled diabetes mellitus and diabetes insipidus. Prolonged bed rest, certain drugs, and even varicose veins at times can also be responsible for orthostatic hypotension and dizziness. Diabetes mellitus with associated autonomic neuropathy can also be responsible for orthostatic hypotension.

The hyperventilation syndrome is a common cause of dizziness. All physicians are acquainted with the neurotic patient who hyperventilates and experiences dizziness. This is apparently based upon the physiologic response to standing and forced ventilation; the blood pressure falls impairing cerebral blood flow. The hypocapnea also produces decreased cerebral blood flow. Its recognition is very important since a simple explanation of the etiology of the symptomatology to the patient will frequently be of help as well as treatment by rebreathing.

II. *Cardiac Factors*

Any mechanical obstruction to cardiac output such as aortic stenosis, primary myxoma of the heart, idiopathic hypertrophic subaortic stenosis, and pulmonary embolism can produce dizziness on the basis of mechanical obstruction.

Muscle factors which impair cardiac output by impairment of the muscle contraction of the heart such as found in myocardial infarction, primary myocardiopathy, pericardial effusion, or any disturbance in rhythm from simple premature contractions to complex arythmias can be responsible for the symptom of dizziness.

III. *Metabolic Factors*

Hypoglycemia may produce dizziness. The history of the relationship of the symptomatology to decreased food intake is of consider-

**TABLE 1**

Differential of Central from Peripheral Vertigo

| | Peripheral (Labyrinth, Vestibular Nerve) | Central (CNS) |
|---|---|---|
| Hallucination of Movement | Definite | Less definite |
| Onset | Usually paroxysmal | Seldom paroxysmal |
| Intensity | Usually severe | Seldom severe |
| Duration | Minutes | Weeks to Months |
| Influenced by head position | Frequently | Seldom |
| Nystagmus | Present | Present or absent |
| Autonomic nervous system symptoms | Definite | Less definite or absent |
| Tinnitus | Frequently present | Seldom present |
| Deafness | Frequently present | Seldom present |
| Disturbances of consciousness | Seldom present | Seldom present |
| Other neurological signs | Usually absent | Frequently present |

able diagnostic importance. There are two types of symptoms which are produced; those due to low cerebral glucose and those from the secondary release of epinephrine, the characteristic results of which are well known. The following table has been found to be very useful in considering the problems of hypoglycemia:

1) Deficient food supply

a) Starvation

b) Excessive elimination (diarrhea or malabsorption, lactation, losses in urine, glycosuria)

c) Hyperutilization (severe exercise, fever, thyrotoxicosis)

d) Abnormal metabolism (certain derangements of metabolism; for example, leucine-induced hypoglycemia)

2) Hepatogenic disorders

a) Primary hepatogenic disorders

General hypofunction. In this situation, the basic problem is a decreased ability of the liver to form glucose. Examples are cirrhosis and hepatitis.

Glycogen storage disease. In this group of diseases there is an excessive accumulation of glycogen in the tissues, due to a deficiency of certain enzymes involved in glycogenolysis. Von Gierke's disease is an example.

b) Secondary hepatogenic disorders

In this group hypoglycemia results from decreased hepatic glucogenesis.

3) Hypersecretion of insulin

a) Insulinomas may be either benign or malignant. Light-headedness was found in 30% of a group of 193 patients with insulinomas. The intravenous tolbutamide tolerance test has been an important addition to the available procedures in establishing this diagnosis.

b) Functional hypoglycemia. These patients frequently are tense and have associated emotional problems. In this situation, hypoglycemia does not occur with fasting. Symptoms frequently occur several hours after eating, particularly after high carbohydrate feedings. Loss of consciousness does not usually occur. Some patients who have had a gastric resection or gastroenterostomy may experience hypoglycemic attacks. It is believed that the gastric surgery allows rapid passage of glucose absorption; this, in turn, stimulates increased insulin secretion and results in hypoglycemia.

4) Drugs

a) Excess insulin. This is probably the most common cause of hypoglycemia.

b) Sulfonylureas. The chief action of these drugs is to stimulate increased production of insulin. Hypoglycemia can occur with any of these, but it is more common with chloropropamide (Diabinese), apparently due to its longer half-life.

c) Biguanides (DBI)

d) Other drugs — antergan, neoantergan, pyribenzamine, salcylates, etc.

5) Early diabetes mellitus

Seltzer and his co-workers reported that mild untreated diabetes mellitus is frequently associated with periodic, symptomatic, spontaneous hypoglycemia and that symptoms of hypoglycemia occurring three to five hours after meals may represent the earliest clinical manifestation of diabetes in many cases.

### Psychiatric Aspects

No medical consideration of dizziness would be complete without a brief word about the psychiatric aspects of this problem. There remains a group of patients with true vertigo in whom after the most extensive study, no organic disease is found. Perhaps as high as 25 percent of these have vertigo as a manifestation of underlying emotional problems. Even patients with organic disease find the symptom of dizziness or vertigo so distressing a symptom that they can become very emotionally disturbed.

### Summary

An orderly approach to this problem will allow the physician in many cases to arrive at the correct diagnosis. Of course it must be noted that diseases are linear and at times only a period of observation will allow the true nature of the problem to be manifest. Also, in many instances, the problem will resolve itself and the diagnosis will still remain obscure. One of the fundamental facts of medical practice is that many patients have problems which will spontaneously improve unless the physician intervenes with drugs or treatment which actually make the patient worse. All physicians should realize that natural factors are his allies in the fight against disease and take care not to do anything that might disturb this relationship. During investigation of the problem, reassurance and interest as well as simple therapeutic measures frequently will improve the patient a great deal. These include mild sedation, occasionally the use of a drug such as diphenhydramine, 50 mg, three or four times a day, and dietary salt restriction. When the specific etiology is ascertained, appropriate treatment is indicated. Patients with true vertigo should be investigated much more thoroughly than patients with dizziness. This would, of course, include an otologic survey and possibly a neurologic survey. In all cases, organized consideration of the patient by the physician is the best approach to the problems of dizziness and vertigo.

## RECOMMENDED READING

A new acquisition in the Library of the Academy of Medicine is *The Psychiatric Dilemma of Adolescence* by James F. Masterson, Jr., M.D.

# THE FEUDING PARENT AND CHILD

• **Difficulty in parent-child relationships exist in eighty percent of American homes today. This report of a study group offers one technique for improvement in this area.**

Owens S. Weaver, M.D.
Vicki Soltz Statton, R.N.

"I hate you," the angry child screams at his mother. Dismayed, frightened, bewildered, such a parent searches anxiously for the trouble. In another home an outraged parent yells, "I wish you had never been born," and is immediately overwhelmed with guilt. "What is the matter with me? How could I say such a thing?"

Hostility between parent and child has become so common that it is a rare physician who is not confronted with this distressing situation. Bewildered and frustrated parents frequently turn to their doctors with pleas of, "What can I do?" and "What did I do wrong?"

*For Editorial Comments*
*See Page 261*

It is with considerable interest therefore, that we have been observing the progress here in Delaware of groups of parents who study a different approach to child discipline. In some cases we have seen spectacular improvement in family interrelationships; in others, a growing harmony. Parents learn to cope with the daily problems of misbehavior and children discover the satisfaction of cooperation.

This is different in the sense that it doesn't follow the old pattern you and I experienced as children. Our childhood discipline was mostly a conformity brought about by either reward or punishment meted out by whichever parent was nearest or in control of the household at that moment. Time passes and we are now the parents with the children to discipline. The old principles no longer work for us and result in unhappiness and sometimes the situation progresses to chaos. Times have changed and so has society. Affluence and its side effects have brought forth an independence heretofore unknown. Today's concepts and values are not those of yesteryear. The cooperative spirit between parent and child hasn't been developed mainly because we do not know any method except that which was used on us. Youth is rebelling against authority because authority is dictating and not the least democratic. Autocratic behavior, such as this, was not unknown to Alfred Adler,[6] a Viennese psychiatrist, in 1912. Adler worked with Freud from 1902 until 1911. In 1912 he founded his "Individual Psychology."

Contrary to Freud, Adler envisioned man as a social being who used his mind, his body and his emotions to move toward a goal of psychological survival.[1] By this he sought to allow the maladjusted to settle his differences with society and again become part of life around him without compromise to himself or to society.

Dreikurs and Soltz have popularized these principles in their text "*Children: The Challenge*" which is used as a teaching manual by parent groups here in our state.[3] These groups meet regularly under the guidance of a lay leader to study together some thirty democratic principles for guiding children. Following the concept that democracy must become a way of life rather than a mere political sys-

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tem, this book guides the parent into a knowledge of procedures based upon mutual respect.

While the idea that children are social equals to adults meets with considerable resistance at first, the parent soon discovers that since children have and use the same power as adults to decide what they will do, equality is indeed a fact. From here on, it is a matter of parental change of attitude from the useless authoritative approach of "do as I say," which engenders hostility, resentment and rebellion to an attitude of mutual respect which allows the development of cooperation in the true sense.

The basic goal of humanity finds fulfillment in social integration, or, a sense of belonging, or having a place within the community of which one is a member. Children, from birth, seek to gain this "feeling of belonging." Though very astute observers, they are frequently poor interpreters. Through trial and error, with insufficient experience and knowledge, they frequently arrive at mistaken concepts as to the means by which they can gain this all important basic goal. The mistaken methods, therefore, are designated as hidden false (or mistaken) goals.

1. The child seeks his place through demanding constant attention. His behavior seems to say, "unless you notice me, I have no value."

2. If the exasperated parent tries to force the youngster to stop demanding undue attention, a power struggle ensues. The child seems to be saying, "I will show you who is boss." This is the most prevalent goal of misbehavior today and the one which the physician most frequently meets. The angry parent tries to *make* a rebellious child mind, and the feud is on. The more the parent punishes, the worse the situation gets until the child moves to his goal.

3. Revenge. Here he seems to be saying, "I have importance only if I can hurt you as I have been hurt."

4. The fourth goal is often seen by the pediatrician. The boy or girl is listless, doesn't want to do anything, refuses to participate. The parent feels hopless: "What's the use?"

It is often the response of the parent which gives the clue to the child's intention, or his hidden goal. If the parent is constantly busy with the youngster, one can feel sure the child is succeeding in his demands for *undue* attention. When the parent is angry and feels impelled to *make* his child behave, he is reacting to a show of power. If the parent feels "hurt," the child is using revenge to find his place and if the parent "gives up," goal four is evident.

Once parents in the study groups understand the hidden purpose of the child's misbehavior, they are in a position to guide him away from the useless means of satisfaction and toward the useful side of life. No child whose courage is intact will prefer the useless side. It is because he has met with real or imagined difficulties which seem insurmountable, that he becomes discouraged. Therefore, the process of encouragement is most important.

### What Discourages Children

Parents in the Wilmington area study groups first learn what it is that discourages children. The traditional methods of child training,[1,2,3,5] based upon a concept of inferior/superior relationships, proves extremely discouraging. The more the parent seeks to push the child down, the more fiercely the youngster seeks to rise. The child's attention is therefore centered upon psychological survival rather than upon the needs of the situation and the contribution he can make. Parents learn to replace their personal authority with the demands of reality. As soon as the pressure is off, most children respond with increasing friendliness and cooperation. This process of encouragement must be active. The child needs first to be accepted *as he is*,[2,3] not goaded into what the parent hopes him to be. Secondly, youngsters need to know their strength rather than be constantly reminded of their weaknesses.

Our prevalent deep concern about mistakes is immensely discouraging. Under this influence, children quickly learn to be afraid of making a mistake. This in turn robs them of the courage to forge ahead, to try, to learn through experience. To offset this cultural illness, parents learn the importance of "the courage to be imperfect." Rather than harping on mistakes, mother and father learn to recognize and acknowledge the child's innate strengths.

A third factor in the process of encouragement lies in the realization that we cannot protect our children from life. The loving mother who overprotects her child learns to replace this discouraging action with faith and confidence in the child's ability.

### Child's Family Birth Order

Since the child's position (birth order) in the family[3] influences his self-image, knowledge of the family constellation is very important. Study groups are frequently surprised to discover that first children of various families are much more alike than brothers and sisters within one home. If the first child strives to keep his place of "first" through excelling in scholarship, the second child may abandon this field and become an athlete. The third child, seeing these two fields covered, may choose moral superiority and be the "good" child. A fourth may win distinction within the family as the "holy terror," while the fifth may find his place as the perpetual baby who needs constant help. An only boy among girls sees his place as distinctive. If the family attitude toward boys is one of boys being "special," this son may look down upon his sisters. But if women dominate, the son may become quite unsure as to how to find his place. The child's position is not nearly as important, however, as his interpretation of that place. In the study groups, parents learn to understand how the child feels about his place in the family constellation[3] and how to influence him into a constructive response. Parents also become alert to the interaction of the children which frequently has a greater influence upon the child's concepts than parental pressures.

For example, parents learn to stay out of the children's fights since brother and sister frequently use quarrels as a means to gain parental approval and push the rival down. If parents refuse to become involved, children fail to gain this objective and redirect their attention to the greater satisfaction of getting along together.

As parents begin to understand their children, the burden of parenthood lightens and they become more relaxed and therefore more effective.[3,4]

By means of hundreds of examples taken from life and presented in Drieker's text, parents learn to distinguish the hidden and mistaken purpose of the child's behavior and also learn what they can do about it.[3] If the child demands undue attention in the thousand ways which only a child can invent, the parent withholds attention, giving it only when the child is participating with the needs of the total situation. Since it is impossible to ignore the demands of a screaming child, the parent is advised to shut himself in the bathroom, traditionally a place of privacy. Adlerians speak of this as "the bathroom technique." The bathroom door, effectively breaks the flow of action between feuding parties. radio and magazines are important assets in the bathroom for parents using this technique. When the child indicates his willingness to meet the demands of the situation, Mother may again return to her duties. Together with this procedure, it is of vital importance that a definite play time be arranged with the child every day.

Should the child engage Mother in a power contest (frequently provoked by parental action), withdrawal from the immediate conflict situation is indicated. The child finds little satisfaction in being victor of an empty field.

A child who presents a feeding problem to the physician usually has a problem parent. "I simply can't get Jane to eat, Doctor. She just picks at her food and she's getting so thin. I've done everything I can think of."

This problem usually represents a power struggle. Mother, hiding behind false intentions to be a good mother, is actually showing her determination that Jane shall eat. Provoked by this undue pressue, Jane shows her power by refusing to eat properly. Members of study groups discover the effectiveness of withdrawing from such power struggles.

Mother decides what *she* will do, rather than what Jane will do. She presents food at the proper time, assumes Jane will eat if she is hungry, and allow Jane to decide for herself whether or not she will eat. Mother avoids all her former persuasive measures and says absolutely nothing about eating. When the rest of the family is finished, she removes the unfinished food and refuses all begging for inbetween snacks. "I'm sorry you feel hungry. I'll serve dinner at the usual time." In following this procedure, Mother is showing mutual respect; that is, respect for herself by being firm about what she will do and respect for Jane's decision. Mother also allows Jane to experience the natural result (consequence) of not eating. The power contest is resolved and Jane is made responsible to meet her own body's demands.

In this way parents learn to operate on principles of mutual respect. This demands that each person respect the right of the other to choose what he will do. Far from allowing the child to do as he pleases, the parent decides what *he* will do, not what the child will do. If the youngster is given a choice of behaving in the restaurant or sitting in the car, and if he knows that he will be firmly removed to the car if he continues to misbehave, he is inclined to assume responsibility for proper action. The parent has not decided that the child will behave, but that he will remove the misbehaving child. There is a big difference.

Above all, the child is taught responsibility for his own behavior.[3] This is accomplished through use of natural consequences, or, allowing events to follow through by nature of the situation. Too many parents, guided by false concepts, attempt to shield their children from the results of their misbehavior. We have seen children change very quickly when they experienced the results of their acts. The child who fails to get up in the morning, despite having his own alarm clock, is consequently late to school. A few occasions of facing the results at school without parental intervention may stimulate him to assume for himself the responsibility of getting up and off to school on time. After all, it is not the parent who is going to school!

The reduced tension on Mother's part when she learns to "mind her own business" creates greater harmony within the home. The child who chronically loses articles and consequently has to do without them tends to become more careful.

One of the hardest but most important lessons for parents to learn is to substitute action for words. In today's society where beating of children is cause for police intervention, parents have substituted words as weapons. As a result, children have become "mother deaf." (And teacher deaf, too!) Words are literally wasted upon such children. Only action speaks.

Many of today's parents are afraid of their children: afraid they will "traumatize them," lose their love, not please them, and thereby prove to be poor parents. We have seen such parents gain courage through new understanding of the parental role and a knowledge of methods by which to guide their children. We have seen children change from hostile, belligerent and un-cooperative tyrants to pleasant, well-behaved and contributive members of the home. This new approach to guiding children seems to work!

Alder's approach was unique for his time because he felt that he could accomplish more by lectures to teachers, welfare workers,[6] parents and laymen than by limiting it solely to the medical world for professional therapy. Much criticism was received from his fellow psychiatrists. To my mind, this is today a form of preventive medicine aimed at our greatest disease, mental illness.

We present this only as a "new found" technique which gives results quickly and pleasantly. To say that this is the only approach would be naive but we do feel it is logical and the most workable.

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# Highlights

## NEUROLOGICAL MANIFESTATIONS OF CARCINOMA

Elliott L. Mancall, M.D., *Hahnemann Medical College. Medical Conference, WMC, March, 1968.*

There are two major classes of neurological disease associated with malignancy. The first general group includes a myasthenia-like syndrome, polymyositis, carcinomatous neuropathy and carcinomatous cerebellar degeneration. These are in general felt to be associated with some as yet undetermined metabolic factor produced by the growing tumor. Although neurologic symptoms occur in association with malignancy involving any organ, they are especially apt to occur in association with lung carcinoma. Both gray and white neural tissue is involved; characteristically the clinical signs and the neuropathological changes are bilateral and symmetrical.

Patients of this sort may exhibit myasthenic syndrome, the so-called Lambert-Eaton Syndrome. They differ from true myasthenia gravis in that the bulbar and occular muscles are seldom involved, and there is the lack of sustained therapeutic response to drugs usually effective in myasthenia gravis. Further, increase rather than decrease in strength may follow muscle activity. They are, however, hypersensitive to curare as is the true myasthenic. The difficulty may first appear when routine doses of muscle relaxants given during surgery produce prolonged periods of muscular paralysis.

Polymyositis (carcinomatous myopathy) tends to involve proximal muscle groups and to be associated with muscle pain, tenderness and eventually with muscle atrophy. When skin involvement is present this syndrome is referred to as dermatomyositis. Tendon reflexes are present, at least early, and there is no sensory loss. Frequently there is evidence of systemic disease such as fever, increased ESR, and leukocytosis. The occurrence of this constellation of symptoms in anyone past 50 years of age should be a red flag, suggesting the possibility of visceral carcinoma, especially of the lung, which will be found in as high as 50% of patients of this sort.

Histopathological examination of muscle in this disorder will demonstrate structural changes including necrosis of muscle fibers with diffuse phagocytic and lymphocytic infiltration, including perivascular infiltration by mononuclears. There will also be evidence of associated muscle regeneration as indicated by the presence of young muscle cells with multiple large pale nuclei. In contrast, biopsies from the myasthenic-like syndrome described above will usually not demonstrate morphological changes in the muscle.

Carcinomatous neuropathy is a distal and symmetrical polyneuropathy which may be predominantly motor, with weakness, loss of reflexes and atrophy, sensory with distal impairment of all modalities of sensation, or mixed motor and sensory with features of both. It is generally subacutely evolving and progressive in course; like the myopathy, this may appear as the first recognizable sign of a visceral malignancy. Pathologically, changes in both myelin and axons are found in the peripheral nerves, and secondary (ascending) changes may be found in the spinal cord. On occasion, changes in the spinal cord reminiscent of myotrophic lateral sclerosis may be found, but the occurrence of this abnormality may not be statistically significant. There is, however, a particularly destructive form of myelopathy found in association with visceral malignancy, taking the form of an ascending necrotizing myelopathy which rapidly progresses to death in a matter of a month or two. It begins with weakness of the legs, sphincter symptoms, and sensory deficit. An ascending segmental sensori-motor deficit then evolves, with profound motor weakness and sensory alteration; complete flaccid paraplegia occurs very early. The clinical syndrome actually resembles a state of spinal shock. Pain is usually absent, a feature which helps to distinguish this from metastatic epidural carcinoma. Pathologically, extensive but symmetrical necrotic changes are seen involving both gray and white matter, and maximal in the upper thoracic segments. Differentiation from radiation myelopathy is important. Radiation myelopathy generally occurs within six or eight months following radiotherapy, although it may occur as long as 1½ years later. It is frequently asymmetrical and may come on rapidly. Unlike the other syndromes described above, it may become static or improve rather than progress. The cause is probably vascular with infarctions, but primary parenchymal damage has also been suggested.

Cerebellar or spinocerebellar degeneration in association with cancer presents with ataxia of trunk and gait, proceeding to incoordination of all four limbs. There may be associated nystagmus, slurred speech and other cerebellar symptoms. The course is relentless over 6 to 8 months. If cerebellar degeneration of an alcoholic etiology is excluded, visceral carcinoma will be found to be a fairly common cause of sporadic cerebellar degenerative disease in mid-life. Histopathological examination shows primarily death of ganglion cells in the cerebellum; associated changes may be seen elsewhere in the neuraxis. Often there is progressive intellectual deterioration with the development of a full picture of dementia.

It is not yet known why all these syndromes are most frequently associated with carcinoma of the lung, especially the small cell undifferentiated type. Unlike the syndromes produced by carcinoma of the lung when it is associated with ectopic production of hormones such as ACTH, ADH, GTH, etc., the neurological symptoms do not consistently subside when the mother tumor is removed.

The second main type of neurological disease associated with malignancy is progressive multifocal leukoencephalopathy. This disease is usually associated with chronic lymphatic leukemia or Hodgkin's disease. Almost any neurologic signs may be encountered, most commonly dementia and pyramidal tract signs. Visual abnormality in the form of hemianopsia is also common. The disease evolves over several months and is progressive. Headaches and seizures are rare. Helpful in the diagnosis is the frequent normality of the EEG and the cerebrospinal fluid. At autopsy extensive demyelination will be found. Histologically, there are several important and curious characteristics, the most important of which is the presence of intranuclear inclusion bodies, thought to signify viral disease. These inclusion bodies are currently considered aggregates of "wart" virus, also referred to as the papova virus, which is thought to become pathogenic in these cases because of the decreased immunologic capacity associated with the patient's primary disease. It thus seems likely at this time that this type of neurologic disease represents infection by a virus not ordinarily pathogenic to the nervous system in the healthy organism. (This is thus a "slow virus" infection).

Since, unfortunately, carcinoma is not a rare disease, it is likely that increased awareness of the various neurologic syndromes associated with carcinoma will result in more frequent diagnosis.

## EWING'S SARCOMA

Referral of patients with Ewing's Sarcoma is requested for a continuing study conducted by the Radiation Branch of the National Cancer Institute. Patients who have received no treatment are preferred, but selected patients with previous therapy will also be accepted for admission as inpatients. Contact: Ralph E. Johnson, M.D., Clinical Center, Room B1B-41B.

# Editorials

## WHO'S PROFESSIONAL?

Several weeks ago I happened upon an intra-hospital meeting announcement that disturbed me. "Professional nurses meeting, Thursday, 8 a.m.; Non-professional nurses and nurses aides meeting, Thursday, 9 a.m.," it said. The status differentiation was unpleasantly jangling. A few days later, while reading the booklet *Health Manpower, Perspective 1967*, published by the US Department of Health, Education and Welfare, it was apparent to me that pains had been taken therein to use considerably more delicate language. The text uses the preferable, if still somewhat artificial designations, "professional," "technical," and "auxiliary" for the various educational levels of nurses existing today. The terms, if somewhat cumbersome, are understandable and, more important, non-insulting.

Organization charts of all institutions large enough to draw them are carefully designed, combining the most meticulous semantic delineation of hierarchy with the utmost protection of sensibilities. Thus, an assistant vice-president is entirely different than an assistant to the vice-president (who may actually do little more than fetch coffee and make barber appointments); both are different from an associate vice-president. The executive vice-president is still a different breed of cat.

The telephone directory gives ample evidence that the status nuances of job nomenclature are not ignored by any occupational group. Chiropodists no longer exist, although I have no idea why. The Yellow Pages refer one seeking a chiropodist's services to "Podiatrists." Similarly, undertakers are gone from the scene. (See "Funeral Directors.") Sanitation engineers collect our garbage; the garbageman no longer answers to that name. There are no druggists nor drugstores in Delaware, but only "Pharmacists" and "Pharmacies." My children's schools have custodians; mine had janitors. We may have housekeepers if we are lucky, but never maids. In our own medical center, there is a young lady wearing a badge proclaiming her a "Laboratory Phlebotomist" (she is a technician trained to collect blood by venepuncture).

Doctors and doctors' satellites are especially apt to use and misuse the word "professional." The big and beautiful new dictionary at my house (Random House; 2059 pages; $25, unless you join the Book-of-the-Month Club as a new member) defines *profession* as "a vocation requiring knowledge of some department of learning or science" and gives as its second definition "any vocation or business." Safecracking and farming marihuana thus qualify as professions just as well as do medicine or nursing.

*Professional* is given nine acceptable meanings by Random House. The first is simply "following an occupation as a means of livelihood or for gain"; thus including under its wide scope surgeons, prostitutes, and bank robbers. Admittedly, definition No. 3 is "engaged in one of the learned professions: a professional man," but this is followed immediately by No. 4: "following as a business, an occupation ordinarily engaged in as a pastime." And what of No. 5? It is "making a business or constant practice of something not properly to be regarded as a business."

Or of No. 8? "A person who makes a business of an occupation, practice, etc., especially of an art or sport in which amateurs engage for amusement or recreation."

By listing these different meanings of the word "professional," we are by no means advocating a pejorative (deprecating, lessening in worth or quality) use of the word. Such an emphasis would be nonprofessional (note that there is no such word as unprofessional.) Rather, we are making a plea to physicians, who should and must be concerned with achieving the best of self-image for all the health professionals, especially those in nursing. We are suggesting that they watch carefully, and restrain when necessary, the demeaning separation of nurses or any other hospital affiliates into "professional" and "nonprofessional" groups. We now have baccalaureate nurses, diploma nurses, associate degree nurses, and practical nurses — avoiding mention of nurses aides, who have fortunately not yet been categorized into baccalaureate nurses' aides, diploma nurses' aides, etc.

The patient hollering, "Nurse," seldom cares which responds; the doctor hollering the same thing often does. If the patient did know the difference, it is still not likely that he would call, "Professional nurse, I need a shot," but "Practical nurse, help me get out of bed."

It is our strong hope that all those individuals doing nursing will be both practical and professional, and that no one, in or out of medicine, shall in the performance of the job for which he has been trained, be designated as a nonprofessional unless he performs it badly.

*B.Z.P.*

## CONTROLLING CHILDREN'S BEHAVIOR

In the article, "Feuding Parent and Child," I thought it was wise of the authors to indicate in the last sentence that the suggested method of controlling a child's behavior is not the only approach. I should like to add a word of caution to parents. If the suggested method is used by parents who are not well versed in its principle, the result might be complete permissiveness and the child will set his own standards of behavior.

Some of us feel that "developmental discipline" should be applied through childhood. With this method, reasonable limits are set by parents according to the stage of the child's development. The parents decide when the child is sufficiently mature to make judgments and certainly many pre-school children are not sufficiently along in their development to determine acceptable standards of behavior and need the guidance of knowledgeable parents. Without reasonable understanding between parent and child, it may be difficult for the child to choose the desired behavior.

In some respects the authors' suggested method of discipline for children reminds one of "reinforcement therapy," now being used with retarded and emotionally disturbed children. By rewarding desirable behavior and ignoring unsatisfactory performance, the child becomes gradually conditioned toward acceptable responses.

Parents who discipline by "mutual respect" should by all means join the study group and should avoid use of this system until well indoctrinated in its principle.

*H.H.S.*

## A NEW DEAN SPEAKS

The University of Pennsylvania Medical School has a new dean, Dr. Alfred A. Gellhorn. Inasmuch as the undersigned as well as many other members of our Society are Penn graduates and maintain, therefore, an interest in all things Pennsylvanian, we would like to welcome Dr. Gellhorn, wish him well, and to pass on to you a recent pronouncement of his. We think it augers well for his deanship.

"If physicians become very skilled, but lose concern for human values, they very rapidly will be treated as technicians."[1]

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[1] Medical Affairs, Univ. of Pa., July, '68, p. 3.

*B.Z.P.*

# Letters to the Editor

To the Editor:

The Delaware Heart Association has awarded a grant to the Infectious Disease Research Laboratory of the Wilmington Medical Center to carry out an epidemiologic survey of Group A beta-streptococcus throat infections in New Castle County. Beginning August 1, 1969, all throat swabs submitted to the laboratory will be screened on sheep blood agar for colonies resembling the Group A beta-streptococcus. These suspicious colonies will be further identified by the fluorescent antibody technique. This procedure differs from that previously carried out in this laboratory in that the previous practice has been to screen all cultures by the fluorescent antibody technique. Physicians submitting the specimens to the laboratory will be notified by telephone or by mail as to the result of the culture. It is expected that the screening will be carried out more rapidly and reports returned to the physicians sooner with the new technique.

As an adjunct to this study, bacitracin discing will be compared with the fluorescent antibody technique as a method of identifying the Group A beta-streptococcus. All strains of this organism isolated in this survey will be tested for antibiotic susceptibility. As a parallel study in conjunction with Dr. Herman Rosenblum, we will attempt to evaluate the various methods of storing strains of Group A streptococcus and these organisms will eventually be typed by the Lancefield method.

Physicians in the State are invited to continue to submit specimens for this survey through the Delaware Division Laboratory as has been the practice in the past.

William J. Holloway, M.D.

# In Memoriam

Dr. J. Leland Fox

Dr. J. Leland Fox, a former President of the Medical Society of Delaware, died in Seaford, Delaware, on June 25, 1968, at age fifty-eight. He was the recipient of the distinguished Service Award of the Society in 1967.

Dr. Fox had been in practice since 1940. He was known and respected for his willingness to undertake the difficult aspects of medical practice and generous contribution of his time and skill to the impoverished.

In his later years he served on the State Board of Health, and was President of the Board from 1962-64.

Dr. Fox is survived by his widow, Mrs. Marie Steinbach Fox; a son, daughter, three grandchildren. Two sisters also survive him.

# President's Page

## DRUG FORMULARY FOR DELAWARE

S. B. 3702 has been introduced in The Congress of the United States to provide that any state receiving federal funds for health programs must have an acceptable formulary by the year 1971. The ostensible purpose for this is to provide an approved list of brand-name drugs and their generic equivalents so that the cost of drugs paid from federal tax funds can be reduced or held within acceptable price range.

Economy in the spending of your tax dollars is laudable and the federal government, no less than you or I, should get full value for its dollar provided that economic and price considerations do not neglect or jeopardize the welfare of the consumer, who is your patient, or the freedom of the physician to prescribe what he thinks is best for his individual patient. There are a number of state medical organizations who, with the cooperation of state pharmaceutical societies, state welfare departments, and state health departments, have developed formularies for use in prescribing drugs under Title 19 of Public Law 89-97.

In May 1967 the Delaware Pharmaceutical Society, Inc., with foresight proposed that a liaison committee be established between its Society and the Medical Society of Delaware. This was done. The appointed medical members of the Committee are Edward M. Bohan, M.D., Everett D. Bryan, M.D., William O. LaMotte, Jr., M.D., Peter P. Potocki, M.D., and Harry Taylor, M.D., chairman.

In April 1968 by request of the pharmacy members of the Committee, a meeting was called. The purpose was to discuss a voluntary program for developing a Delaware State Formulary.

In June 1968 the medical members of the Liaison Committee met and recommended that the Council consider approval in principle of the purposes outlined in the guidelines for the creation of a formulary for the State of Delaware presented by the pharmacists at the April meeting.

On July 18, 1968, the Council of the Medical Society of Delaware approved the idea of a limited trial formulary consisting of fifteen or twenty of the most commonly used drugs and their generic equivalents but did not adopt the "guidelines" in their present form. Four members of the Medical Society of Delaware have been appointed to the Formulary Advisory Board to work out details of the state formulary program with the understanding that decisions of the Board and future changes in the program will be made only with the approval of the Medical Society. This is intended to be a pilot program without provision for expansion until analysis of cost factors has indicated justification for it.

I am not knowledgeable concerning the chemistry and manufacturing processes of drugs but I have learned that the designated "generic equivalent" of brand-name drugs may not actually be "equivalent" in quality or in physiologic action in some instances. Important effects on the intended medicinal action of some drugs are dependent upon variations in the purity and quality of ingredients, the specific stages employed in manufacture, and the quality control of the manufacturing processes. It seems to me that our representatives on the formulary committee and board have significant responsibilities not only to our Medical Society, but more especially to the welfare of the people of Delaware.

Daniel J. Preston

# Delaware Academy of General Practice

## ALTERATIONS TO ACADEMY-SPONSORED GROUP INSURANCE

The AAGP Insurance Committee has approved several far-reaching alterations to Academy-sponsored group insurance and disability plans. These will provide membership recruitment incentives in the form of an unrestricted enrollment period for new members, as well as increased benefits and eased policy restrictions for present Academy members.

Insurance Committee Chairman, Frank H. Green, reported the Committee approved a recommendation by Robert Koch, administrator for AAGP Group Disability Plans, Inc., to establish a 90-day open enrollment period in which new members may obtain coverage in three Academy disability plans without presenting evidence of insurability. The open period, he said, will begin immediately after affiliation.

The three plans open to new members on a three-month unrestricted basis are the Supplemental Income Plan, the Practice Overhead Plan and the Accidental Death and Dismemberment Plan. Some form of hospital coverage will be included at a later date, the chairman added.

Also approved by the Committee was a recommendation for a five percent increase in benefits for Academy members enrolled in the Academy-sponsored Group Life Plan. Dr. Green stressed that the increase, which took effect June 1, will be accomplished with no increase in premium. It boosts maximum coverage under the plan to $50,000. He noted that a 10 percent coverage increase was provided in 1967.

The Committee approved two other alterations to the Academy-sponsored disability program. On Mr. Koch's recommendation, July 1 through September 30 has been designated an open enrollment period for all present Academy members who wish to participate in the Practice Overhead Plan. Dr. Green explained that during this three-month period previously uninsurable members will be allowed to enroll in the plan which guarantees disability coverage to a limit of $500 per month. Also during this period, existing riders on policies up to $500 of monthly benefits will be removed.

He noted the Committee also approved optional coverage for disabilities that result from piloting a private aircraft. Coverage for private plane passengers has been available for some time. This new voluntary coverage will be handled as a rider at additional premium so the majority of members who do not need it will not have to pay an increased premium charge. It will be available under the Lifetime Security Plan, the Disability Income Plan and the Accidental Death and Dismemberment Plan.

## ARE HOUSE CALLS ILLOGICAL?

Robert M. Sigmond, Executive Director of the Hospital Planning Association of Alleghany County, Pittsburgh, Pennsylvania, at an AMA conference on Aging and Long Term Care, Baltimore, Md.,: "When a hospitalized patient develops a new symptom, he must be seen by a nurse to determine if he is sick enough to call a doctor. When a patient at home develops a symptom, he must be seen by a doctor to determine if he is sick enough to need a nurse."

# In Brief

**Research Program**

A three-year research program with a grant of $160,000 has been established for the diagnosis of patients with inborn errors of metabolism related to mental retardation and neurologic handicaps, at the New York University Medical Center by the American Institute for Mental Studies. The institute specializes in the the diagnosis, treatment, education and care of those with intellectual handicaps, including those functioning at a mentally retarded level, the brain injured, the slow learner and the so-called *exceptional child.*

**New Publications**

*Current Research in Chronic Airways Obstruction* has just been released by the National Center for Chronic Disease Control, P.H.S. A limited number of single copies are available from the Public Inquiries Branch of the P.H.S. or may be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402, for $2.00 each or $150 per hundred.

**Medical Society Representative**

Howard L. Reed, M.D. will represent the Medical Society of Delaware at the International Congress on Alcohol and Alcoholism to be held in Washington, D. C., September 15-20. Alcoholism which ranks among the leading health problems in the world today will be the major subject of the international congress. Representatives of 20 foreign countries, including "Iron Curtain" countries such as the U.S.S.R., Poland, Yugoslavia, Czechoslovakia, Hungary and Romania, have already registered. Total attendance is expected to reach 2,000.

**In The News**

James Beebe, Jr., M.D., has been elected a Director of Farmers Bank of the State of Delaware. He has been a member of the Advisory Committee of the Lewes office of Farmers Bank since 1957.

Robert L. Klingel, M.D. has received official notification from Governor Charles L. Terry, Jr., of his appointment as a member of the select Marksmanship Group known as *The Governor's Twenty.*

Walter H. Comer, M.D., has been appointed to the newly created position of Associate Director — Clinical Investigation, on the medical staff of Wyeth Laboratories. Dr. Comer joined Wyeth in 1966 with a medical background that included specialization and board certification in anesthesiology.

**Speakers on "Ask the Doctor"**

Speakers for September, 1968, on the Tuesday Radio program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: September 3, Joseph W. Abbiss, M.D., *Papanicolaou Smears;* September 10, Dene Walters, M.D., *Fever;* September 17, David Platt, M.D., *Medicaid;* September 24, Christopher R. Donoho, M.D., *Immunological Factors in Organ Transplants.*

**AEC Report**

*Radioisotopes-Production and Development of Large-Scale Uses,* a new report from the AEC, describes how isotopes are employed in national health, space and defense programs, in the conservation of food and natural resources, and in marine science and industrial radiation processes. Major isotopes discussed include cobalt-60, strontium-90, cesium-137, cerium-144, promethium-147, thulium-170, polonium-210, plutonium-238 and curium-244. A limited number of copies of this report are available at the AEC's offices at 1717 H. Street, NW, Washington, D. C., or by writing to AEC Division of Public Information, Washington, D. C. 20545. The report is also for sale at $.50 from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402.

## Warning

Nearly half of the 500 Americans who get tetanus this year will be adults and over half of them will die. Probably three-quarters of the American adult population have not been immunized against tetanus, estimates Dr. Raymond L. White, AMA consultant.

## The Month in Washington

### Preventive Medicine

"Improving the quality of life in this country requires that far greater national effort be devoted to reducing the incidence of preventable diseases, accidents and premature death." This was the theme of a proposal to President Johnson to establish a *Commission on Disease Prevention and Health Protection.* "To continue the present national emphasis upon treatment and after-the-fact remedies, as opposed to prevention, must be regarded as a failure of the health professions to adequately protect the public," he was told. Many of the diseases currently prevalent can be prevented entirely. Others can be detected and cured in the early stages. Benefits can be derived through legislation. Others will accrue through public and professional education. For example, we now have the authority to clean the polluted air over most of the major urban areas of this country.

The Magnuson group said that "despite the convincing case for prevention, about two-thirds of all medical schools do not have departments of preventive medicine. We should at once encourage the establishment, or strengthening, of these departments in all medical schools, and emphasize a more realistic training program for the physicians of tomorrow."

### Anti-Drug Laws

U.S. Attorney General Ramsey Clark appealed for broad support and cooperation of the public in enforcement of the laws against marijuana and LSD, otherwise the law cannot be enforced effectively.

### Birth Control Program

President Johnson named a special committee to develop a five-year program for providing more effective birth control. An official said one matter to be studied would be the fact that present methods of contraception are not adequate; the so-called "pill" is also too expensive for widespread use in some areas and it was difficult to educate illiterate people in its use.

### Pooled Blood Plasma

The NIH has asked processors of whole pooled human blood plasma to halt its interstate shipment because the substance has been causing hepatitis, an infection of the liver, in one of 10 patients receiving transfusions. The move is expected to halt and perhaps even discontinue use of most such plasma of which about 300,000 pints are given annually to about 100,000 patients in the United States.

**National Cancer Conference**

The Sixth National Cancer Conference sponsored by the American Cancer Society and the National Cancer Institute will be held at the Denver Hilton Hotel, September 18, 19, and 20, 1968. For further information, write: Roald N. Grant, M.D., Coordinator, Sixth National Cancer Conference, American Cancer Society, 219 East 42nd Street, New York, N.Y. 10017.

**Clinical EEG**

A continuation course in Clinical Electroencephalography to be held September 9-11, 1968, in San Francisco is designed as a basic review of the application of the EEG to clinical medical practice and is sponsored by the American EEG Society (aided by a grant from the National Center for Chronic Disease Control, PHS). Make inquiries to: Dr. Donald W. Klass, EEG Course Director, Mayo Clinic, Rochester, Minn. 55901.

**International College of Surgeons**

The first joint meeting of the International College of Surgeons' two Western Hemisphere Federations will be held from September 28 to October 3, 1968, in Honolulu, Hawii. This year for the first time the South American Federation will join the nations from the North American, Central American and Caribbean Federations who will be celebrating their 33rd Annual Congress. The fee is $35.00 for ICS members, $40.00 for non-members and $20.00 for each accompanying adult. For details, write: International College of Surgeons, 1516 N. Lake Shore Drive, Chicago, Ill. 60610.

**Postgraduate Course**

The Department of Otolaryngology of the Illinois Eye and Ear Infirmary College of Medicine of the University of Illinois at the Medical Center will conduct a postgraduate course in Laryngology and Bronchoesophagology from September 23 through October 4, 1968. This course is limited to fifteen physicians. Instruction will be provided by means of animal demonstrations and practice in bronchoscopy and esophagoscopy, diagnostic and surgical clinics, as well as didactic lectures. Write: Department of Otolaryngology, College of Medicine, University of Illinois at the Medical Center, P. O. Box 6998, Chicago, Illinois 60680.

**Colon and Rectal Surgery**

The first meeting of the Pennsylvania Society of Colon and Rectal Surgery will be held Friday night, September 13, at the Union League, Philadelphia. For details, write: Frank H. Murray, Penn Society of Colon and Rectal Surgery, 801 Madison St., Chester, Pennsylvania.

**ASA Conference**

The New England Society of Anesthesiologists Annual Fall Conference, *Anesthetic Agents and Techniques,* will be held September 12-14 at the Lake Tarleton Club, Pike, New Hampshire.

**ACP Regional Meetings**

The American College of Physicians announces the following regional meetings in September:
American College of Physicians *(Kentucky/Tennessee Regional)*, Imperial House, Lexington, Ky., Sept. 7.
American College of Physicians *(North Dakota Regional)*, Fargo, N. Dak., Sept. 7.
American College of Physicians *(Indiana Regional)*, Stouffers, Indianapolis, Ind., Sept. 7-8.
American College of Physicians *(Oklahoma/Arkansas Regional)*, Oklahoma City, Okla., Sept. 14.
American College of Physicians *(Wisconsin Regional)*, The Pioneer, Oshkosh, Wisc., Sept. 13-14.
American College of Physicians *(Michigan Regional)*, Otsego Ski Club, Gaylord, Mich., Sept. 20-21.

**Professional and Hospital Activities**

On Thursday, September 5, 1968, an Institute, *Introduction to the Professional Activity Study and the Medical Audit Program*, including utilization review and medical auditing, will be offered by the Commission on Professional and Hospital Activities at Ann Arbor, Michigan. Registration is open to physicians, hospital administrators, medical record librarians, and other interested individuals. The registration fee is $35 per person. This program is acceptable for seven elective credit hours by the American Academy of General Practice. A program outline and registration form can be secured from the Commission on Professional and Hospital Activities, First National Building, Ann Arbor, Michigan 48108.

# The Physician and The Pharmacist

*A monthly feature of the Delaware Pharmaceutical Society*

## DRUG ABSTRACTS

**Oral Contraceptives**

As of June 30, 1968, oral contraceptives distributed in the United States will carry a new warning ordered by the Food and Drug Administration. In essence, the warning will cite findings of British investigators indicating that women taking such preparations increase their chances of death or disease from blood clots by 7 to 10 times. In May, 1967, the British Research Council concluded that ". . . there can be no reasonable doubt that some types of thrombotic disorders are associated with the use of oral contraceptives." *(Clin-Alert No. 121,1967)* In more recent reports *(British M. J. 2:193;199 (Apr. 27) 1968)* the Council's Statistical Research Unit and the British Committee on Safety of Drugs confirm the association between the use of oral contraceptives and deep-vein thrombosis and pulmonary embolism. Oral contraceptives may also cause cerebral thrombosis. On the other hand, an association between oral contraceptives and other thrombosis on the arterial side, notably coronary thrombosis, remains unproved.

*Treatment of Infertility*: Oral Contraceptives (non-sequential type) have been used extensively over the past ten years in treatment of women with inexplicable infertility. Such treatment is based on the questionable "rebound" concept. Since oral contraceptives may produce degenerative changes in the ovary and are capable of inducing long-term amenorrhea upon discontinuation, from what do such patients "rebound"? Oral contraceptives are not helpful in treatment of the so-called normal infertile woman and, indeed, are contraindicated.

*Whitelow, M. J. (2061 Clarmar Way, San Jose, Calif.): Fertility & Sterility 19:372, May- June, 1968.*

**Furadantin — Toxic Hepatitis**

A 65-year old man developed toxic hepatitis after receiving Furadantin (nitrofurantoin-Eaton) orally, 150 mg/day, for one month. The liver disorder apparently resulted in a coagulation defect which resulted in a life-threatening hemorrhagic state. The patient eventually recovered following repeated blood transfusion and the administration of phytonadione.

*Murphy, K.J. et al. (Princess Alendral Hosp., Ipswich Rd., Woolloongabba, Queenland Australia (Dr. Murphy)), JAMA 204:396 (Apr. 29), 1968.*

**Wintergreen Mints**

*(Possible Explosive Hazard)*

A hard bite on a dry wintergreen mint produces a visible spark. Perhaps the static electricity so produced is insufficient to set off an explosion but the reporter (who was not the discoverer) of this phenomenon lacked the courage to conduct experiments in an atmosphere of pure oxygen or with cyclopropane. Sparking research has been largely limited to Life Savers, though Certs work quite nicely. Wintergreen-mint chomping thus be a hazard and, until proved otherwise, should be discouraged in such places as operating rooms, oxygen tents, and spacecraft.

*Edwards, H., Jr., & Edwards, D.W. (Edwards Clinic, Dixon, Ill.), New England J.M. 278:1024 (May 2) 1968.*

**Ethchlorvynol — Withdrawal Seizures**

The ethchlorvynol (Placidyl; 'Serensil'-Abbott) labeling warns that abrupt withdrawal of the drug may precipitate seizures and psychoses in certain patients. The importance of this warning is underscored by the following observation. A 67-year-old man who had been taking 1.25 gm ethchlorvynol daily for insomnia and anxiety was hospitalized for the investigation of possible myelomatosis. All drugs were withdrawn. Three days later the patient experienced the first of two seizures which were followed by mental confusion and aggressive behavior. The reaction subsided spontaneously and the patient was discharged on the 11th day.

*Abuzahra, H. T. & Rossdale, M. (Royal Inf., Sheffield, Eng.): British M.J. 2:433. May 18, 1968.*

# MEDICAL SOCIETY OF DELAWARE

## 1776 - 1789 - 1968

## 179th ANNUAL MEETING

October 20 and 26, 1968

# PROGRAM

### HOUSE OF DELEGATES

### OCTOBER 20

Delaware Academy of Medicine, 1925 Lovering Avenue, Wilmington
2:00 P.M. House of Delegates
5:00 P.M. Reception for Delegates

### SOCIO-SCIENTIFIC SESSION

### OCTOBER 26

Delaware Academy of Medicine, 1925 Lovering Avenue, Wilmington

8:30 REGISTRATION — EXHIBITS

9:00 Call to Order — Daniel J. Preston, M.D., President, Medical Society of Delaware
Welcoming Remarks — John W. Alden, Jr., M.D., President, New Castle County Medical Society
Report of the House of Delegates — Joseph W. Abbiss, M.D., Secretary, Medical Society of Delaware

9:15 MEDICINE AND SOCIETY: PROFESSIONIAL ROLES IN RETROSPECT AND PROSPECT — Richard M. Magraw, M.D., Professor, Internal Medicine and Psychiatry, University of Minnesota, Minneapolis, Minnesota

9:55 MEDICAL EDUCATION — James A. Campbell, M.D., President, Presbyterian-St. Luke's Hospital, Chicago, Illinois

10:35 INTERMISSION — EXHIBITS

11:00 OFFICE OF THE MEDICAL EXAMINER — Joseph Spelman, M.D., Medical Examiner, City of Philadelphia, Philadelphia, Pennsylvania

11:40 PRESIDENT'S ADDRESS — Daniel J. Preston, M.D.
Business Meeting
Election of President-elect

12:35 LUNCH — Host, New Castle County Medical Society

2:00 PERSONALITY DISORDERS — John MacIver, M.D., Director, Psychiatric Service, United States Steel Company, Pittsburgh, Pennsylvania

2:40 INTERMISSION — EXHIBITS

3:00 3rd PARTY PLANS — Mr. John C. McCabe, President, Blue Shield of Michigan, Detroit, Michigan

3:40 ADJOURNMENT

The Medical Society of Delaware gratefully acknowledges the assistance of the following in the presentation of the program.

Bristol Laboratories
Ciba Pharmaceutical Company
Eli Lilly and Company
Merck Sharp & Dohme
Parke-Davis
A. H. Robins Company
Roche Laboratories
William H. Rorer, Inc.
Schering Laboratories
Wyeth Laboratories

Wilmington Country Club, Kennett Pike, Wilmington

6:30 Reception and Cocktails

7:30 Annual Banquet
Invocation — The Very Reverend Lloyd E. Gressle, D. D., Dean, the Cathedral Church of St. John, Wilmington
Dancing 'til 12:30 A.M. — Paul Wilkinson's Orchestra

6 Hours AAGP Credit Applied For

# PROGRAM OF THE THIRTY-NINTH ANNUAL MEETING

## THE WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF DELAWARE

SATURDAY, OCTOBER 26, 1968

Wilmington Country Club, Kennett Pike

10:00 A.M. Registration and Coffee Hour

10:30 A.M. General Session

Call to Order — Mrs. Harold J. Laggner

Pledge of Loyalty

Address of Welcome — Mrs. Howard Wilk, President
New Castle County Auxiliary

Introduction of Guests

Memorial Service

Roll Call of Delegates — Mrs. Edward Dennis, Secretary

Treasurer's Report — Mrs. Edward O'Donnell

Reports of County Auxiliaries
Kent — Mrs. William Leitzinger
New Castle — Mrs. Haynes B. Cates
Sussex — Mrs. Joseph Elliott

National Convention — 1968
Delegate's Report — Mrs. Richard Weiss

Reports of Priority Committees

Report of the President — Mrs. Harold J. Laggner

Report of the Nominating Committee — Mrs. John W. Howard

Election and Installation of Officers

Address
Mrs. C. C. Long Ozark, Arkansas
President of the Woman's Auxiliary to the American Medical Association

12:30 P.M. Luncheon

Invocation

Introduction of the Advisory Committee

Greetings from the Medical Society of Delaware
Daniel J. Preston, M.D., President

Presentation of Past President's Pin

Inaugural Address — Mrs. Richard Weiss

Adjournment

### PLEDGE OF LOYALTY

*"I pledge my loyalty and devotion to the Woman's Auxiliary to the American Medical Association, I will support its activities, protect its reputation, and ever sustain its high ideals."*

## EXHIBITORS

**BOOTH**

### No. 1—Bristol Laboratories

Bristol Laboratories' exhibit features POLYCILLIN (ampicillin trihydrate). This member of the Bristol family of synthetic penicillins is the first oral penicillin bactericidal against a significant number of Gram-negative and full spectrum of penicillin G-sensitive Gram-positive pathogens.

### No. 2—Blue Cross & Blue Shield of Delaware, Inc.

We take great pleasure in extending a cordial invitation to all physicians attending this meeting to visit our booth where you will receive a warm welcome. Our representatives will be present to answer any inquiries.

### No. 3—Manor Pharmacy

Please stop by our booth and speak with our pharmacist.

### No. 4—J. B. Roerig & Co.—Div. Chas. Pfizer Co., Inc.

Continued Pfizer research brings forth important new drugs. One such drug is Navane. . . a new major tranquilizer. A representative will be on hand to answer any and all questions you might have on Navane as well as our other fine specialty line of products.

### No. 5—Secretel, Inc.

Secretel, Inc. offers the modern doctor the perfect answering service electronically operated with the emergency call capability. See a demonstration for error-free performance operating 24 hours a day, 7 days a week. You may also see Pocket Doctor in action, an electronic device for all your cardiac, aged, or invalid patients.

### No. 6.—Quillen Brothers Ford

Quillen Brothers Ford of New Castle proudly presents their exciting 1969 Ford exhibit at the 179th Meeting of the Medical Society of Delaware. A Quillen representative will be available to answer any questions concerning the all new '69' Fords or the Quillen Brothers agency. A number of the Fords will also be available for demonstration purposes.

### No. 7—G. D. Searle & Co.

You are cordially invited to visit the Searle booth where our representatives will be happy to answer any questions regarding Searle Products of Research. Featured will be information on Ovulen-21, Enovid, Aldactazide, Flagyl, Lomotil, Pro-Banthine and other drugs of interest.

### No. 8—Schering Laboratories

Schering Laboratories invites you to visit their exhibit where their representatives will be available to discuss with you any questions you may have on ETRAFON®, DRIXORAL®, VALISONE®, CELESTONE®, SOLU-SPAN® Injection, AFRIN®, GARAMYCIN®, DRIXORAL®, TINACTIN®, or any other Schering product.

### No. 9—Endo Laboratories, Inc.

Endo Laboratories will present the latest clinical information relating to our products, COUMADIN® (SODIUM WARFARIN), NUMORPHAN® (OXYMORPHONE) HCL, PERCODAN®, PERCODAN® — DEMI, HYCOMINE®, HYCOMINE® — COMPOUND, HYCODAN®, VALPIN® (ANISOTROPINE METHYLBROMIDE), VALPIN® — PB (ANISOTROPINE METHYLBROMIDE WITH PHENOBARBITAL).

**BOOTH**

### No. 10—Wyeth Laboratories

Wyeth Laboratories will feature Ovral* and the Tubex* and Redipak* Systems. Representatives Bob Dulick, Ben Hetzel and Dave Cooper will be in attendance at the booth and look forward to greeting members and guests of the Society. (*Tradename)

### No. 11—Merck Sharp & Dohme

The Merck Sharp & Dohme exhibit has been designed to supplement the physician's therapeutic armamentarium. Technically trained personnel are present to discuss the scope and variety of services offered.

### No. 12—Bertholon-Rowland, Inc.

The Medical Society of Delaware-sponsored Accident and Sickness Plan has been available to the members since 1953. Representatives of the Bertholon-Rowland Agencies welcome this opportunity to review the important features of your group program.

### No. 13—Wallace Pharmaceuticals

The Wallace Pharmaceuticals' exhibit illustrates some of the research being done by this company, under the leadership of Dr. Berger. Dr. Berger was the discoverer of Miltown, the first tranquilizer introduced into this country, and Soma, the first muscle relaxant-analgesic introduced into this country. Jeff Voluck, the Wallace representative in Delaware, cordially extends an invitation to stop by and visit the Wallace exhibit.

### No. 14—Ciba Pharmaceutical Company

Ciba representatives will be on hand to answer your questions concerning their products. Ciba research continues to produce new therapeutic agents.

### No. 15—W. B. Saunders Company

Mr. Flannery will be on hand with the complete Saunders' line of books published within the last few months.

### No. 16—J. A. Montgomery, Inc.

Members of the Medical Society of Delaware are cordially invited to seek the latest information on any type of insurance, estate planning, or tax savings. J. A. Montgomery professional specialists will be on hand.

### No. 17—Cappeau's Drug Stores

Cappeau's Drug Stores in Wilmington, Willow Run, and Newark welcome members of the Medical Society of Delaware to visit their exhibit—PRESCRIPTION SERVICE.

### No. 18—Charles Lentz and Sons

The Charles Lentz salesman in attendance welcomes your questions about our equipment.

### No. 19—The Delaware State Board of Health

The State Board of Health presents an exhibit of Home Health Service in Delaware. This service is covered by Medicare. Our display gives a brief illustration of the two types of Plans (A and B), for which Medicare patients can qualify. Literature will be available explaining these plans.

**BOOTH**

### No. 20—Reilly's Medical Books

Our 15 years in close contact with the medical profession enables us to serve you promptly and efficiently in this dedicated field. Non-medical books are also available through our Trade Department for your convenience. Located just outside Philadelphia adjacent to International Airport on alternate Rt. 13 — our services are used by many institutions along the eastern coastline.

### No. 21—Mutual Benefit Life Insurance Company

Walter B. Suskind, CLU, Agency of the Mutual Benefit Life presents "Financial Planning for the Physician". Check with our representative for matters on tax savings, money management, insurance, estate planning. Mutual Benefit Life has been appointed by the AMA as one of four administrators for their retirement plan for physicians.

### No. 22—Sandoz Pharmaceuticals

Sandoz Pharmaceuticals cordially invites you to visit our display where we are featuring Mellaril, Sansert, Cafergot P-B, Fiorinal and Fiorinal with codeine. Any of our representatives in attendance will gladly answer questions about these and other Sandoz products.

### No. 23—Gray Audograph Agency

The Gray Audograph Display Booth will feature the GRAY E.T.C. (Executive Transmission Center) Magnetic Dictator. Utilizing a magnetic belt, the new GRAY E.T.C. has exclusive new automatic features that insure fastest, error-free transmission of executive thought, at the same time reducing operation to simplicity itself. Save Time with GRAY.

### No. 25—Disability Determination Service, Vocational Rehabilitation Division

### No. 26—Libby Surgical Supply Company

We wish the members of the Medical Society of Delaware a most successful meeting. Please stop by our booth and say hello.

### No. 27—Rehabilitation Division of the Delaware State Board for Vocational Education

Representatives will be on hand to answer your specific questions and provide information on their services.

### No. 28—George D. Hanby Company

Hanby's will feature Conserv-A-Files. Roll-out shelves permit faster filing, save ½ the aisle space, take any kind of folder, even card trays. Retractable doors available with gang lock. Cost less per linear inch of filing space. P.S. Ask about the new X-ray Negative Conserv-a-files. Hold more! Save Space! Save time!

### No. 29—Wilmington Council on Alcoholism, Inc.

ALCOHOLISM — A COMMUNITY CONCERN. The display on alcoholism will have charts showing steps to alcohol addiction and the steps to recovery. Our services to the community will be listed. A consultant will be available to discuss the planning of a program on alcoholism. Literature will be available for alcoholics, spouses of alcoholics, employers of alcoholics, and the professions.

### No. 29A—DELPAC

The Delpac exhibit is designed to inform the physicians of the aims and functions of the Committee. It will be manned by members of the Executive Committee and Board of Directors. We invite all State Society members to stop by for a first-hand report on the AMPAC national work-shop and the on-going plans for the campaign of 1968.

**BOOTH**

### No. 30—Rajkumar Clothiers

Makers of finest custom-tailored clothes from Hongkong. Box 6422, Kowloon, Hongkong. Custom clothes made for ladies and gentlemen.

### No. 31—Lakeside Laboratories, Inc.

Representatives of Lakeside Laboratories, Inc., of Milwaukee, Wisconsin will be pleased to discuss their products and professional services with you. Some key products are Mercuhydrin, Imferon, Cantil, Metahydrin, Norpramin and Metatensin.

### No. 32—John G. Merkel & Sons, Inc.

See the latest and finest in Medical and Laboratory equipment for hospital or office and the latest equipment for the home care of your patient. This equipment available upon request.

### No. 33—The Coca-Cola Company

Ice-cold Coca-Cola served through the courtesy and cooperation of the Delaware Coca-Cola Bottling Company, and the Coca-Cola Company.

### No. 34—Smith Kline & French Laboratories

Representatives will be on hand to answer your specific questions and provide information on their products and services.

### No.35—William P. Poythress & Company, Inc.

The Poythress exhibit will feature Trocinate, a unique, direct-acting (musculotropic) antispasmodic drug, and the Mudrane combinations, established Poythress products for relief of bronchial asthma. Solfoton, Solfo-Serpine, Panalgesic and Synirin will also be featured. Your requests for literature and professional trial quantities are cordially invited.

### No.36—Pro Services, Inc.

PRO Services administers the Internal Revenue-approved "trusteed" Keogh Retirement Plan offered to the members of the Medical Society of Delaware. The plan offers a combination of fixed dollar investments with shares of PRO Fund, Inc., a no-load open end mutual fund, seeking growth of capital through increasing value of the securities in its investment portfolio.

### No. 37—Roche Laboratories

Our representative will gladly answer your questions about our products. Please stop by.

## GENERAL INFORMATION

### Time and Place

The House of Delegates will meet at 2:00 P.M., Sunday, October 20, at the Delaware Academy of Medicine. Following the business session there will be a buffet for Delegates. The Socio-Scientific Session will be held Saturday, October 26 at the Delaware Academy of Medicine, 1925 Lovering Avenue, Wilmington at 8:30 A.M. The Woman's Auxiliary will meet at 10:00 A.M., Saturday, October 26 at the Wilmington Country Club. The annual dinner-dance will be held at 6:30 P.M., Saturday, October 26 at the Wilmington Country Club.

### Registration

The registration desk will open at 8:30 A.M. on October 26 at the Delaware Academy of Medicine. Coffee will be served by the Delaware Association of Medical Assistants during the registration period. Admission to all sessions will be by badge secured at the registration desk.

# MEDICAL SOCIETY OF DELAWARE 1967-68

Delaware Academy of Medicine — Representative, Norman L. Cannon, M.D.
Blue Cross-Blue Shield, Inc. Trustees: James M. Chase, Jr., M.D., Conley L. Edwards, M.D., John J. Egan, M.D., H. Thomas McGuire, M.D., Karl S. Russell, M.D., Allen H. Seeger, M.D.

## STANDING COMMITTEES

Budget
*Lawrence Katzenstein, M.D.
Charles Allen, M.D.
Alfred E. Bacon, Jr., M.D.
James Beebe, M.D.
Charles Walker, Jr., M.D.

Program
*Daniel J. Preston, M.D.
Carlo Cuccia, M.D.
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Herman Rosenblum, M.D.

Publications
*Robert B. Flinn, M.D.
Joseph W. Abbiss, M.D.
Davis G. Durham, M.D.

Public Laws
*Allston J. Morris, M.D.
Rhoslyn J. Bishoff, M.D.
Christopher R. Donoho, M.D.
Floyd I. Hudson, M.D.
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## SPECIAL COMMITTEES

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John M. Levinson, M.D.
Edward T. O'Donnell, M.D.
Ignatius J. Tikellis, M.D.
Richard Weiss, M.D.

Aging
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Joseph A. Elliott, M.D.
Joseph F. Hughes, M.D.

Community Council on Emergency Services
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†William H. Duncan, M.D.
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Mrs. Joan Wright
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David Platt, M.D.
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William J. Holloway, M.D.
Norman P. Jones, M.D.
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Grievance Board
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H. Thomas McGuire, M.D.
Sylvester W. Rennie, M.D.

Maternal Mortality
*William D. Johnson, M.D.
A. M. Devenis, M.D.
Winfried Mroz, M.D.
John C. Rawlins, M.D.

Medical Economics
*Davis G. Durham, M.D.
Olin S. Allen, M.D.
J. Robert Fox, M.D.
C. E. Graybeal, M.D.
Pierre L. LeRoy, M.D.
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John E. Benzel, M.D.
Edward S. Dennis, M.D.
Oliver A. James, M.D.
Charles M. Moyer, M.D.

Medical School for Delaware
*C. Anthony D'Alonzo, M.D.
*James E. Marvil, M.D. *Co-Chairmen*
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Howard Wilk, M.D.

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Alfred E. Bacon, Jr., M.D.
Alfred Lazarus, M.D.
W. Philip Portz, M.D.
Arthur F. Zimmerman, M.D.

Medicare Adjudication
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Edward S. Dennis, M.D.
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Walter W. Moore, M.D.
Richard Raiber, M.D.

Medico-Legal Affairs
*James T. Metzger, M.D.
Kurt Anstreicher, M.D.
S. Ward Casscells, M.D.
Leslie M. Dobson, M.D.
Martin Gibbs, M.D.
Pierre L. LeRoy, M.D.
Robert M. Marine, M.D.
James R. McNinch, M.D.
Gerald J. Savage, M.D.

Mental Health, Alcoholism, and Drug Dependence
*H. Thomas McGuire, M.D.
I. Lewis Chipman, M.D.
Richard J. Kester, M.D.
Richard P. Delaplaine, M.D.
William J. Vandervort, M.D.

Prepayment
*R. Douglas Sanders, M.D.
Joseph W. Abbiss, M.D.
Olin S. Allen, II, M.D.
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Herbert M. Baganz, M.D.
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John J. Egan, M.D.
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Martin Gibbs, M.D.
David A. Levitsky, M.D.
Harold S. Rafal, M.D.
Karl S. Russell, M.D.
Allen H. Seeger, M.D.
Harry Taylor, M.D.
Howard Wilk, M.D.

Medical Review
*R. Douglas Sanders, M.D.
Alfred E. Bacon, Jr., M.D.
Herbert M. Baganz, M.D.
James M. Chase, Jf., M.D.
Conley L. Edwards, M.D.
John J. Egan, M.D.
Edgar R. Miller, Jr., M.D.
H. Thomas McGuire, M.D.
Harold S. Rafal, M.D.
Karl S. Russell, M.D.
Allen H. Seeger, M.D.
Harry Taylor, M.D.
Leslie W. Whitney, M.D.
Howard Wilk, M.D.

Religion and Medicine
*Thomas H. Hogshead, M.D.
John B. Baker, M.D.
Sarah Bishop, M.D.
Robert L. Dewees, M.D.
James J. Gallagher, M.D.
Richard Taylor, M.D.
Richard H. Weiss, M.D.
The Rev. Lloyd Casson
The Rev. Charles Hart

School Health
*Edward F. Gliwa, M.D.
Rhoslyn J. Bishoff, M.D.
Sarah Bishop, M.D
Robert W. Frelick, M.D.
Harry G. Neese, M.D.
John C. Rawlins, M.D.
William D. Shellenberger, M.D.

Venereal Disease
*Donald Schetman, M.D.
Winder L. Porter, M.D.
Casimir Vileisis, M.D.
Rafael Zaragosa, M.D.

Liaison with Child Diagnostic and Development Center — Henry Stroud, M.D.
Liaison with Delaware Chapter, American Cancer Society — Oscar N. Stern, M.D.
Liaison with Delaware Chapter, American Diabetes Association — Herbert M. Baganz, M.D.
Liaison with Delaware Chapter, American Heart Association — Alfred E. Bacon, Jr., M.D.
Liaison with Delaware Interagency Council on Smoking and Health — James M. Hofford, M.D.
Liaison with Delaware Nurses' Association — R. Douglas Sanders, M.D.
Liaison with Delaware Pharmaceutical Society — *Harry Taylor, M.D., Edward M. Bohan, M.D., Everett D. Bryan, M.D., William O. LaMotte, Jr., M.D., Peter P. Potocki, M.D.
Liaison with Delaware Tuberculosis and Health Society — James M. Hofford, M.D.
Liaison with Mental Health Association of Delaware — H. Thomas McGuire, M.D.
Liaison with Vocational Rehabilitation Commission — Martin B. Pennington, M.D.
Liaison with Delaware Association of Medical Assistants — Carl I. Glassman, M.D.

*denotes chairman
†denotes Vice-Chairman

## WOMAN'S AUXILIARY TO THE MEDICAL SOCIETY OF DELAWARE

Mrs. Harold J. Laggner, *President*
Mrs. Richard Weiss, *President-Elect*
Mrs. Edward T. O'Donnell, *Treasurer*
Mrs. Rafael Zaragosa, *Corresponding Secretary*
Mrs. Edward Dennis, *Recording Secretary*

## NEW CASTLE COUNTY MEDICAL SOCIETY

John W. Alden, Jr., M.D., *President*
Leonard P. Lang, M.D., *Pres.-Elect*
John J. Egan, M.D., *Vice-President*
Marvin H. Dorph, M.D., *Secretary*
Joseph V. Casella, M.D., *Treasurer*

*Delegates* (1967-1968): John W. Alden, Jr., M.D., Joseph A. Arminio, M.D., Herbert M. Baganz, M.D., John W. Barnhart, M.D., Edward M. Bohan, M.D., Italo Charamella, M.D., A. Henry Clagett, Jr., M.D., C. Anthony D'Alonzo, M.D., Joseph J. Davolos, M.D., Robert L. Dewees, M.D., Marvin H. Dorph, M.D., Edward F. Gliwa, M.D., Maurice Goleburn, M.D., G. Barrett Heckler, M.D., Robert D. Hunt, M.D., Leonard P. Lang, M.D., Douglas W. MacKelcan, M.D., Edward S, Parvis, M.D., Winder L. Porter, M.D., William D. Shellenberger, M.D.

*Alternates* (1967-1968): Donald C. Cameron, M.D., I. Favel Chavin, M.D., Howard D. Cohen, M.D., Christopher R. Donoho, M.D., James F. Flanders, M.D., Carl I. Glassman, M.D., Joseph A. Glick, M.D., Gerhard E. Hartenauer, M.D., Pierre L. LeRoy, M.D., Robert L. Meckelnburg, M.D., Edwin A. Mekanik, M.D., McHenry Peters, M.D., Charles L. Reese, III, M.D., Charles S. Riegel, M.D., Donald Schetman, M.D., Charles W. Wagner, M.D., Dene T. Walters, M.D., Robert L. Wuertz, M.D.

*Delegates* (1968-1969): Marvin V. Andersen, M.D., Alfred E. Bacon, Jr., M.D., Edward F. Becker, M.D., Joseph E. Belgrade, M.D., Robert S. Brennan, M.D., Thomas R. Brooks, M.D., Joseph V. Casella, M.D., Haynes B. Cates, M.D., I. Lewis Chipman, M.D., H. George DeCherney, M.D., Davis G. Durham, M.D., John J. Egan, M.D., George N. Eriksen, M.D., Robert W. Frelick, M.D., Park W. Huntington, M.D., Warren R. Johnson, M.D., Allston J. Morris, M.D., Christos Papastavros, M.D., Robert E. Price, Jr., M.D., William J. Vandervort, M.D.

*Alternates* (1968-1969): Rafael E. Alzamora, M.D., Nicholas P. Bash, M.D., Jason L. Campbell, M.D., Peter R. Coggins, M.D., Walter H. Comer, M.D., Armand N. DeSanctis, M.D., Churchill C. Franklin, M.D., Martin Gibbs, M.D., Charles R. Green, Jr., M.D., Morris Harwitz, M.D., George R. Hilty, III, M.D., James M. Hofford, M.D., Dietrich Kroll, M.D., Maurice Liebesman, M.D., R. Walter Powell, M.D., Leonarrd Rosenbaum, M.D., Robert E. Toner, M.D., James G. Waddell, M.D., Philip R. Walker, M.D.

*Alternate* (1968): Andrew M Gehret, M.D.

*Woman's Auxiliary*
Mrs. Howard Wilk, *President*

## KENT COUNTY MEDICAL SOCIETY

Charles Allen, M.D., *President*
Richard B. Glidden, M.D., *Vice-Pres.*
Winifred L. Mroz, M.D., *Sec.-Treas.*

*Delegates:* John A. J. Forest, Jr., M.D. - 1968, Rhoslyn J. Bishoff, M.D. - 1968, Norman P. Jones, M.D. - 1969, Arthur F. Zimmerman, M.D. - 1969.

*Alternates:* John J. Lazzeri, M.D. - 1968, E. Harold Mercer, M.D. - 1969.

*Woman's Auxiliary*
Mrs. F. B. Lane Haines, *President*

## SUSSEX COUNTY MEDICAL SOCIETY

John C. Rawlins, M.D., *President*
Albert J. Wildberger, M.D., *Vice-Pres.*
A. M. Devenis, M.D., *Sec.-Treas.*

*Delegates:* W. Pierce Ellis, M.D. - 1968, Laurence L. Fitchett, M.D. - 1968, Carl Pierce, M.D. - 1969, C. E. Graybeal, M.D. - 1969, Robert Kingsbury, M.D. - 1969, Arthur Tormet, M.D. - 1969.

*Alternates:* Thomas E. Dyer, M.D. - 1969, John C. Rawlins, M.D. - 1969, Ulo Ware, M.D. - 1969, George Botte, M.D. - 1969, Daniel Alvarez, M.D. - 1969, Robert Klingel, M.D. - 1969.

*Woman's Auxiliary*
Mrs. Joseph Elliott, *President*

DANIEL J. PRESTON, M.D.

President, Medical Society of Delaware, 1967-1968

Delaware Medical Journal

SEPTEMBER, 1968
VOLUME 40
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# THE STATUS OF MEASLES IN THE STATE OF DELAWARE

**• Even with its declining morbidity, certain steps must be taken to ensure the final eradication of measles.**

Edward F. Gliwa, M.D.
Richard M. Gunn

In the two years of its existence, the Division of Health Maintenance and Immunization has addressed itself to two prime targets in the state of Delaware. These are: first, the relatively short-term goal of expediting the eradication of measles in the state, and second, the long-term, continuing objective of reducing the number of people susceptible to the communicable diseases for which vaccines are available. These goals will be accomplished by maintaining high percentages of immunization in the susceptible populations and utilizing proper disease surveillance so as to prevent these diseases from becoming major health problems.

With respect to measles the first objective is well on its way toward achievement. In the ten-year period prior to the licensing of the live virus measles vaccine, the average annual number of reported cases was 856 (Figure 1). The actual yearly figure had considerable year-to-year variation due to the cyclical nature of the disease. The high was 1,943 cases in 1954 and the low was 126 cases the following year. In 1965, there were 519 cases of measles reported. Although measles vaccine was then being used to some extent by private physicians, a marked decrease was not apparent until mass measles immunization campaigns were undertaken in the state in 1966. That year the reported case incidence dropped to 268; a decrease of almost fifty percent from the preceding year. As the graph indicates, this figure was further reduced to only 50 cases in 1967; a reduction of 80 percent from the 1966 incidence.

It is estimated that since 1966, public immunization programs in Delaware have been responsible for the administration of 42,000 doses of measles vaccine in the state. This, coupled with the vaccine given by the private physicians, has led to the lowest measles morbidity ever in Delaware for this year. On June 5 of this year, the total number of cases reported for the year was eight, compared with 36 during the same period in 1967. If the cases continue at this low rate, we can expect approximately one-fourth of the cases that occurred in 1967 (the projected number

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of cases for 1968 on the graph).

From these rather dramatic results, the natural assumption would be that measles no longer represents a health threat in Delaware. We must not, however, allow ourselves to become complacent for the following reasons.

Measles vaccine from both public and private sources has reached a large proportion of the population, yet these immunization activities still do not take into account an estimated 25 percent of the most susceptible population. Protective levels of immunity against measles, be they natural or a result of the use of the vaccine, are still estimated to be present in only about 70 percent of pre-schoolers and 95 percent of in-school children below 12 years of age. This leaves an approximate 20,000 nonimmunized preschoolers and 5,000 unprotected school children. This is a considerable figure and certainly appears to be a good distance from the immunization level necessary for total eradication of the disease. Yet these figures are not so worrisome as might be expected for they represent a scattered group of susceptibles. A large percentage of the rural pre-schoolers, although susceptible, are not often exposed, especially since most of their older in-school siblings are immunized and do not represent a possible source of infection. However, it is felt that we are fortunate not to have experienced local outbreaks in these pockets of susceptibility.

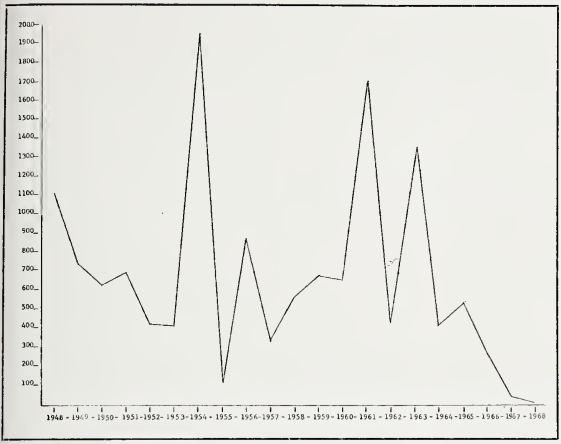
Another reason for a lack of out-right optimism for measles' eradication in the state is that our reporting in Delaware has not previously stressed the importance of measles. Formerly, measles (as well as mumps and rubella) has been reportable only by number in Delaware. Even this limited reporting has often been marked by a lack of differentiation between rubeola and rubella.

The reporting of notifiable diseases as listed on the notifiable disease report card is mandatory in Delaware as outlined in Title 16, sections 501, 502, 503 and 504 of the Delaware Annotated Code.

The notifiable disease report card has recently been updated to include measles, mumps, and rubella as diseases reportable by name, address, age, and sex. It is hoped that by including measles in this category, we will not only re-emphasize the importance of its reporting but also find out important data as to the type of person contacting the disease and location of the occurrence. The last two items will give us information about: 1. Those who need measles immunization most critically, and 2. The actual location of any potential outbreaks in the state, so that appropriate epidemiological steps may be taken quickly.

It is worth noting at this point that improved data on both mumps and rubella is also being actively sought. It is hoped that this information will allow us to have a better epidemiological profile of these diseases, so that if and when the vaccines for these disease become practical for general use as are poliomyelitis and measles vaccines, they may be used effectively.

The State Board of Health has undertaken several steps to reduce the existing backlog of susceptibles to measles and other diseases in the state, and to maintain our present levels of immunity. The first and perhaps most useful is the Infant Maintenance Program. This program's aim is to start the children of Delaware with their basic immunization series early in life and to maintain these adequate immunization levels as long as practical. The program consists of a series of mailings to all parents of newborns encouraging them to begin their children's immunizations as early in life as possible. These referrals are to the family physician or pediatrician except for those people who, by necessity, utilize our well-child conferences. This program is currently enjoying the participation and cooperation of 75 percent of parents for approximately this number respond to the questionnaire mailings by indicating that their children have begun their immunizations. Beginning in February, 1968, those who do not respond are contacted by registered nurses, either by telephone or by a field visit. Nonrespondents of the upper and middle economic classes, who most likely have begun their children's immunizations are generally screen-



Number of reported cases of measles in Delaware from 1948 to 1968.

ed by a telephone call, leaving those more indigent to be visited personally and counseled by the nurses. This consultation is providing not only improved immunization levels, but a case finding method for other health problems which might occur in such households.

Improved education programs encouraging parents to seek immunizations in the offices of private physicians, in the schools, in the health units, and in the migrant camps are also being carried out at present. The State Board of Health offers free antigens for measles, poliomyelitis, smallpox, diphtheria, pertussis, and tetanus to the physicians of Delaware with the only condition for their use being that no cost be assessed for the antigen. The physician may charge for administration of the antigen.

It is hoped that through conscientiously applied immunization and epidemiological practices we can accomplish successful eradication, similar to that experienced on this continent with smallpox, for diseases such as poliomyelitis, measles, and the other infectious diseases of childhood.

## MOTHER WAS A DIABETIC

During recent reading regarding diabetes and pregnancy, this masterful paragraph was discovered. Its mellifluous prose is so very unusual in medical literature, and its extravagant descriptions so vivid, we reprint it for your delectation.

"They (the newborn of the diabetic mother) convey a distinct impression of having had such a surfeit of both food and fluid pressed upon them by an insistent hostess that they desire only peace so they may recover from their excesses. And on the second day their resentment of the slightest noises improves the analogy, while their trembling anxiety seems to speak of intra-uterine indiscretions of which we know nothing."
Farquhar, J.W.: *The Child of the Diabetic Woman*, Arch. Dis. Child. 34:76, 1959.

# FAMILY PLANNING AND DELAWARE

• **The term "Family Planning" is defined and some misconceptions clarified. The problems that exist in Delaware are described with some discussion of how to solve them.**

Catherine B. Middleton, M.D.

What exactly is the meaning of the term "Family Planning"? Many people, both lay and professional, think of it solely as mass contraception. This is a false assumption for there is much more to a Family Planning program, although the earlier services offered by voluntary agencies placed most of their emphasis on this aspect. "Family Planning" is exactly what it says. It is a group of services for those who wish to limit the size of their families; to space their children; or who, because of genetic problems, are in need of advice of the risks of having malformed or retarded children and assistance in making the decision; or for mothers in whom another pregnancy would be a clearly recognizable threat to health or life. Diagnosis, evaluation and treatment for couples with infertility problems is also a part of the program. In this context, contraception is but one of the medical tools used to promote better health in families in need of it, regardless of income, and it is not to be construed as a weapon for sociological reforms such as the reduction of welfare rolls, or as a cross for the poor to bear in penance for their poverty.

### Federal and State Legislation

In recent years, popular sentiment in the United States for legal sanction and ready accessibility of what has come to be known as "Family Planning" has grown steadily. This sentiment has been buttressed by studies which explode long-held beliefs that most poor people really wanted all the children they had. Closer examination has revealed that the major obstacles confronting the disadvantaged family in maintaining control of its size were ignorance of the existence of methods of control and, where such knowledge did exist, financial inability to take advantage of this service. Similarly, it has been documented that both knowledge and financial ability result in family size control, which has already been accessible for years to the more affluent members of our population. Federal health legislation enacted in 1967 and 1968 has taken into consideration the fact that the disadvantaged, given the choice, have the same desires to limit family size as the remainder of the population. This legislation has stipulated that family planning services must be available to anyone desiring such services, without coercion and not as a condition for receiving other services from public health and welfare agencies. The legislation also states that such services are indeed an essential part of comprehensive health care. The state of Delaware has committed itself to fulfilling the long-range national comprehensive health care program intended to be fully implemented by 1975.

Historically, the Delaware State Board of Health has not been an active provider of either contraceptive services or family planning. This role in the state's health spectrum

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Table I

| Location | White | Non-White |
|---|---|---|
| | Race | |
| City of Wilmington | 22.7 | 27.05 |
| New Castle County (Exclusive of Wilmington) | 17.13 | 36.75 |
| Kent County | 14.38 | 34.70 |
| Sussex County | 24.72 | 56.34 |

1966 Infant Mortality Rates per 1,000 Live Births in the State of Delaware (Wilmington, New Castle County, Kent and Sussex Counties) by Race.

has been assumed by the Delaware League for Planned Parenthood, Inc., which since 1931, has provided the only family planning service available in this State. In recent years, the State Board of Health has permitted the League to use some of its clinic facilities, but all instruction, supplies and personnel have been the League's responsibility. As a result, most of the service has been in the Wilmington area and has been largely inaccessible to the rest of the state. High quality has been and still is the hallmark of the League's services, but large numbers of people who want and need them have not been able to enter its program.

With these factors in mind, and after considerable reflection, the State Board of Health began in July 1968 to implement a well-rounded family planning service as a part of its Maternal and Child Health Services. This will be a part of the state plan for delivery of comprehensive health care and will be offered to those families who wish to avail themselves of such services and would not otherwise have access to them.

There is ample evidence to demonstrate that this commitment on the part of the State Government was not only justified, but urgently needed. Two-thirds of the people of Delaware live in Wilmington in an urban area, with its attendant ills of poor housing, low income, and high welfare rolls. The other one-third lives in predominantly rural areas where housing is worse (except for suburbia), incomes are on the average lower, and welfare rolls not much different from the Greater Wilmington area. Public transportation outside of Wilmington is non-existent, and third and fourth-hand cars, usually used, are unpredictable, even if they are not being used by the breadwinner to get to and from his or her job.

The citation of some interesting financial data is pertinent. In Wilmington and New Castle, 11.3% of the population earns less than $3,000 per annum; in Kent County, 24.5% and in Sussex County, 27.9%. The infant mortality rate is twice as high for non-white infants everywhere except in the City of Wilmington where there is a fairly small difference, probably due to the ready accessability of hospital and clinic services.

In Sussex County where more babies die, in proportion, than anywhere else in the state, the infant mortality rate per 1,000 live births is 56. This means that 5.6% of non-white infants in this area die before they are twelve months old; 3.5% die before one month which must be attributed largely to late or no prenatal care; 2.1% die between one and twelve months which must reflect some indication of the nature of their care during the first year of life.

Prematurity rates, which also reflect the extent to which prenatal care is accessible and/or use, is clear in Table II.

Fortunately, Delaware's mortality figures are at a minimum but appropriate investigation might well reveal that this low mortality is only true because of heroic care of preventable prenatal and obstetrical complications by the physicians who were responsible for the "walk-in" labor cases and obstetrical emergencies. Since 99% of our births occur in hospitals, this speaks well for our hospitals and physicians, but it would be interesting to know how high a percentage of mothers re-

Table II

| Location | White | Non-White |
|---|---|---|
| | Race | |
| City of Wilmington | 40.47 | 83.42 |
| New Castle County (Exclusive of Wilmington) | 33.89 | 89.39 |
| Kent County | 31.65 | 88.33 |
| Sussex County | 22.47 | 51.05 |

1966 Prematurity Rates per 1,000 Live Births in the State of Delaware (Wilmington, New Castle County, Kent and Sussex Counties) by Race.

ceive no prenatal care before they arrive at the hospital in labor. Such data would perhaps indicate a greater emergency use than actually necessary in the utilization of physicians' time and manpower; emergencies which could be prevented by adequate prenatal care.

**Proposed Program**

In order to insure efficient use of personnel and facilities and to reach those people most in need, the proposed program will progress in stages over a period of the next five years. During the first year, emphasis will be placed on strengthening our existing prenatal and post-partum clinics by the addition of family services. It is also planned to extend maternity clinic services into lower New Castle County where at present, such facilities are, non-existent. Surveys will be made on an ongoing basis to identify areas in need of these and other health services but without access to them.

As the program progresses, intra-partum services will be included and hospital services to mothers in the immediate post-partum period will be offered. In cooperation with the State Board of Education, every effort will be made to develop a sound family life education curriculum in the public schools of the state. A cooperative program, involving participation by the medical centers of Delaware and the surrounding areas, will be developed to provide diagnosis, evaluation and treatment of infertility problems and diagnosis and evaluation of genetic problems.

Associated with the development of family planning will be a concentrated program for the early identification of 'high-risk' infants. It is expected, through hospital reporting of such infants within a week of birth, that the Public Health Nursing Service will be able to begin early supervision and continue intensive care through the first year of life. This should serve the two-fold purpose of (1) early case-finding and referral of children with health problems, and (2) protection of "high-risk" infants from the more common, preventable and curable ailments which now claim their lives more often than those of the average newborn.

In addition, a very important bonus should be the identification of those mothers most in need from a medical standpoint of family planning services for their own health, as well as for the well-being of their families. Hopefully, the combination of the two programs would reduce the tragic situation which we see, all too often, of families with more than one handicapped child. It would also offer a means of identifying "high-risk" mothers.

The State Board of Health has had presented to it from private sources funds to build a health unit in Middletown. It is hoped that this facility can be developed as a model of public health care delivery and used as a controlled situation where new programs and projects can be tried prior to their institution on a statewide basis. In the process, costly mistakes could be avoided by identifying and correcting operational flaws before becoming too involved with the scrapping of those which prove impractical before substantial financial commitments are made.

Full health care services will be scheduled at Middletown with a 'one stop' approach. Clinic appointments will be made at the same time for both mother and child, thus reducing

*Continued on Page 284*

# THE RECOGNITION OF DEPRESSIVE ILLNESS*

**• In the following article a psychiatrist who was formerly a general practitioner applies some deep psychological insights to the picture of depression as it may be seen by the non-psychiatric physician.**

Abraham Freedman, M.D.

Although the clinical picture of depression is usually seen in its characteristic form, the non-psychiatrist may come across forms of depression which may easily be overlooked. One example which I recall from my general practice days:

The patient was a ruddyfaced stocky man in his middle fifties who complained of painful feet. His feet had been so bothersome that he had been unable to go to his usual work as a butcher in a slaughterhouse for the past two months. He attributed his trouble to flat feet and asked me to prescribe arch supports for him. Examination disclosed no signs of neuritis, arthritis, or of circulatory disturbance in his feet, although he did have a moderate degree of pes planus. I took a blood sample for determination of uric acid and sugar and gave him a note to a surgical appliance store. The next day he again appered, this time accompanied by his wife.

"Doctor," she said, "you must talk some sense into this crazy husband of mine. He must have fifty pairs of arch supports around the house now and he can't think of anything except his feet all the time."

Still not picking up the cues (the two-month layoff from work, the preoccupation with his feet, and his wife's awareness that his behavior was "crazy"), I re-examined him, prescribed an analgesic, and told him to come back when I would have the results of the blood tests.

The next evening, the patient's wife practically dragged him into my office by the ear and said, "Doctor, you'll have to put some sense into my man's silly head. Look how he was trying to scare me." She pulled down his shirt collar and exposed a red rope burn around his neck. "He went down the cellar and tried to make me believe he was going to hang himself."

Only then did I become aware that the patient had a severe depression with a somatic preoccupation bordering on somatic delusion and with a real suicidal intention. Of course he needed immediate hospitalization, and it was pure luck that he had not successfully hung himself while the doctor, like the patient, was preoccupied with the presenting symptom.

A young woman whose mother had just died by suicide told the following story to a County Medical Grievance Committee: Her mother had been hospitalized for an hemorrhoidectomy after a few months of complaining of anorectal symptoms for which there were minimal findings on examination. When the proctologist visited her on the first postoperative day, the patient asked him quietly, "I do have cancer, don't I, Doctor?" He replied, "Of course you don't, my dear; everything is just fine." The family noted that the patient was very quiet most of the time and spoke only of her fears about cancer. During the surgeon's visits on the second and

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*Presented as one of a series of lectures under *Applications of Psychiatric Principles in General Practice*, Kent General Hospital, Dover, February 14, 1968; offered through Jefferson Medical College and the National Institutes of Health.

third postoperative days, the patient again asked him if she had cancer, and she was again given a cheery reassurance. She was discharged on the fourth postoperative day with a perfect operative result, and that night she took a lethal dose of barbiturates.

These two cases represent a type of depressive illness which is not recognized as such because the presenting symptom is an idea about a physical complaint. In the second case, the unfortunate patient's daughter told the doctors on the Grievance Committee what should have been done about it. "If he (the surgeon) had only listened to her!" she said. "He should have asked her what she was worried about instead of brushing her off with the cheery bedside manner."

Somatic delusion is a common symptom in psychotic depression. Whenever a patient has a persistent preoccupation with an illness, symptom, or part of the body, the physician should suspect underlying delusional ideation. This can be elicited by a sympathetic, open-minded inquiry without an attitude of either belief or disbelief. As the patient gets confidence that the doctor is willing to listen to him, he will become bolder in disclosing his guarded secrets about himself, and the bizarreness of his thinking may then become obvious. For example, the painful feet may overlie an idea that "all my bones are turning to mush." The question about cancer might have meant, "My rectum is rotting away and you didn't really operate on me because my insides were already gone." Inquiry can then be directed to other elements of depression such as feelings of worthlessness and guilt, lack of energy, loss of interest, an inability to feel the usual love toward others, and the physiological signs such as early morning insomnia, anorexia, weight loss, and constipation.

Depression is often evident by a cursory inspection of the patient. The posture is slumped and slouched whether he is walking, standing, or sitting. The shoulders are rounded and the chin rests on the chest. The expression is sad and the corners of the mouth are down. Bodily movements are slowed and express the "heaviness" which the patient complains of. Speech is not spontaneous and answers to questions are minimal. Sometimes there are agitated movements of the smaller members such as hands, feet, and fingers while the larger muscle groups are inactive. The eyes may be teary or red, but with severe depression the patient often complains, "Tears won't come. If I could only cry, I would feel better."

### Presenting Symptoms

Any persistent hypochondriacal worry can be the presenting symptom of depression. The complaint need not be specific. Sometimes there are only vague feelings of not being up to par, bothersome fatigue, inability to do as much work as formerly, and difficulty in starting in the morning. I have also seen repeated upper respiratory infections, or complaints of sinus headache and allergies mask the onset of depression, particularly when the symptoms are blamed for causing a feeling of exhaustion. Depressed patients are particularly prone to have gastrointestinal symptoms. "Food doesn't taste the same," is often heard as well as, "It tastes dry like straw." Constipation is often a symptom of depression. Characteristically the abdominal complaints are vague and may screen a bizarre somatic delusion such as, "My insides are rotten so the food can't get through."

There are normal affective states which resemble pathological depression and should be distinguished from them. Sadness is a normal reaction to loss. Unhappiness is often a necessary part of existence if we are not to be idiotic pollyannas. The state of mourning is a natural reaction to loss of a loved one and indeed a normal process of mourning is a healthier mental process than the absence of mourning in such situations. Hopelessness may be related to real events; and a state of unrelieved hopelessness may lead to the psychological state, apathy, which outwardly resembles depression. It is the task of the physician to note the passage of a sad affective state into a condition of pathological depression.

Sigmund Freud's monumental paper, *Mourning and Melancholia*, was first published in

1917. He noted the resemblance of melancholia to a state of mourning and gave us insight into the deeper psychology of both conditions. When one loves someone, a part of one's interests or loving energies, or "libido" as Freud termed it, is attached to the love object. The loss of the object deprives the lover of that portion of his libidinal energies. This can be observed as inability to become interested in anyone else or anything else. In the process of mourning, memory images of the lost one are recalled and gone over with a gradual release of the libido attached to each one. The libido lost with the lost object also depletes the mourner of his own store of self love so that he fails to care for himself and suffers an empty feeling inside as if the external loss were also an internal one.

### Ambivalence and Loss

The process of mourning may be complicated by the presence of mixed feelings of ambivalence toward the lost loved object. Feelings of hate may have been intermingled with feelings of love in the course of the relationship. In that case, the loss will represent the attainment of a forbidden destructive wish and the subject will feel guilty. The normal period of mourning will be replaced by depression. Generally speaking, the greater the ambivalence the more likely is this to happen. Depression involves the reaction to an internal loss of ambivalent love objects with which one has identified in the past. These internalized objects have become part of the self and the negative effect directed toward them becomes the self-hate or self-destructive component of a depression. Therefore, in dealing with patients who have suffered a loss, the physician is more capable of distinguishing between mourning and depression when he knows more about his patient's relationship to the lost love object.

Here is a clinical example: A seventy-eight-year-old man was severely depressed following the loss of his wife two months previously. He was anorexic, lost weight, had difficulty sleeping, and pleaded with people just to let him die. The family could not understand why he was taking it so hard because he had been unhappy with his wife for many years. Although the patient showed all the signs of depression, he was alert enough to partake in psychotherapeutic interview sessions. For the past twenty-five years, his wife had become increasingly jealous and suspicious of him and even at his advanced age she still suspected him of running around with other women. She had become increasingly quarrelsome in the past few years, and from the patient's description it seemed probable that she had a paranoid psychosis. Nevertheless, he had continued to live with her and care for her. He would close his ears and bury his head in a newspaper or a book while she would continue to rant. On the day of her death, he had arisen early and intended to go to the corner store and buy a newspaper. His wife accused him of wanting to go out to meet a woman, and there was the usual argument. He went on his errand and returned to his apartment to read the newspaper. After an hour or two, he was surprised to realize that there were no sounds from the bedroom to which he assumed his wife had retired. After a while, the unaccustomed silence made him feel uneasy; and he went into the bedroom where he found his wife unconscious. He called for assistance, and she was taken by police ambulance to a hospital where she died of a cerebral vascular accident. Despite the advanced age of his patient, he was able to explore his feelings about his wife and came to admit the extent of his ambivalence and the fact that her death was not entirely unwelcome. Then he was able to see that the thought he had following her death (that she died because he had gone to the store that morning and had not cared whether she lived or died) was coming from his guilt, not over what he had done or not done, but over what he had been feeling and unconsciously wishing for. He recovered from his depression and lived happily a few more years as a beloved grandfather.

The physician must be aware of the factors which are invariably present in depressive illness and which are related to the force of suicidal ideation and impulses. The first of these is object loss. Any action by the physician which would increase the sense of object loss would necessarily increase the severity of the depression and the accompanying suicidal risk. Since the physician may come to represent an important object in the patient's mind, by displacement of the patient's feelings for the original love object onto the physician, any thoughtless disruption of the therapeutic relationship can be dangerous. Such events may occur by failure of the physician to respond to a telephone call, failure to be contactable during off hours or during vacation periods, or by unwarranted dismissal of the patient or failure to give him another appointment.

The self-esteem of the patient is very tender in depressions. It is usually low and if it falls still lower, the danger point is reached when there is not enough self-esteem left for the patient to feel that he is worthwhile saving. The regard of the physician for his patient is an important factor in preserving the patient's self-esteem. On the contrary, if the physician should feel annoyed with his patient's illness and communicates this to the patient in any way, he can further damage the patient's self-esteem. The depressed patient already hates himself and cannot stand adding the disapproval of others to his self-hate. The depressive usually takes all possible criticism upon himself and accepts all the blame in situations where others are also responsible. The physician who has a tendency to blame his patients for his own mistakes or for any misunderstanding will find that the depressive will readily accept all the blame, and his condition will become much worse.

Whenever there has to be a change in the therapeutic relationship, such as a referral to a psychiatrist or to a hospital, the attending physician should help the patient retain a feeling of contact with him until the change has been accomplished. Otherwise in the interval between doctors, the patient may suffer a sudden sense of object loss or reduction of self-esteem that can lead to suicide.

## Summary

The nonpsychiatric physician should be alert to depressive illness that is concealed by somatic preoccupation. The differentiation between a normal affective state such as mourning and a pathological depression is tied to the recognition of the underlying psychology of the patient. An understanding of the factors of object loss, self-esteem, and self-hate in depressive illness will help the physician protect his patient against suicide.

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## FAMILY PLANNING AND DELAWARE

*Continued from Page 280*

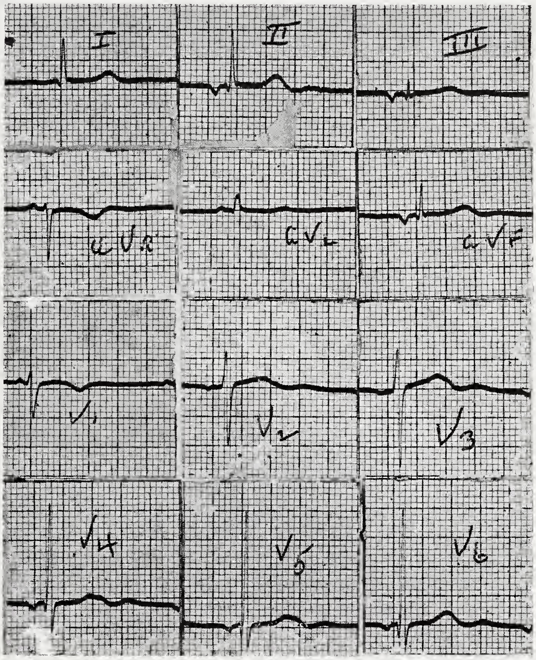
the number of visits required. In addition, welfare, nursing and dental services will be available under the same roof. Other services will be provided as needs indicate.

### Role of Delaware Physicians

As in all of Delaware's public health programs, a most important component in the development of this project is the private sector of medicine. More than any other State Board of Health service, the Maternal and Child Health Services are indebted to those physicians in private practice who give and have given their time and services to our programs. With the limited medical manpower in Delaware, we shall have to depend on this group of dedicated physicians for help in implementing this expansion of service. It is hoped that the physicians of Delaware will continue their efforts to care not only for their private patients, but also those who have no resource. In the final analysis, how well these new programs advance depends on how well they are received by the medical community which will be asked to staff them.

# PQRST INTERESTING ELECTROCARDIOGRAMS

Editor: A. Henry Clagett, Jr., M.D.



**Clinical Data:**

Female, age 66. Hypertensive encephalopathy. Blood pressure 210/120 to 140/80. No digitalis.

**Reading:**

Rate — approximately 60
Rhythm — regular
PR interval — 0.14 second
Complexes —
P waves inverted in leads 2, 3, aVf and V-2 to V-6.
QRS complexes — tall R with small Q in left chest leads.
T waves normal. U waves in V-2 to V-6.

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*Interpretation appears on Page 294*

# CPC Wilmington Medical Center

## Cylindroma (Remote) and Grant Follicular Lymphoblastoma with Paraplegia Following Radiation Therapy in a 62-Year-Old Woman

WILLIAM J. VANDERVORT, *Discusser*

LEONARD P. LANG, M.D., *Editor*

### Presentation of Case

*First Admission* — This patient was 62 years old at the time of her first admission. One month before, she had developed severe left-sided pain which involved the lower thoracic and upper lumbar areas with radiation anteriorly. The pain responded to rest and analgesics and did not recur until 24 hours before admission. The pain was intense but seemed to be relieved by remaining perfectly still.

A careful review of systems failed to elicit any other symptoms. In August, 1959, she had a lobectomy performed for removal of a bronchial adenoma of the cylindroma type with metastasis to one regional lymph node. Physical examination was within normal limits except for moderate obesity. She was seen by an orthopedic consultant who could find no abnormalities.

An x-ray of the thoracic spine showed only minimal degenerative changes, and narrowing of the lumbar spine at the L5-S1 disc space. Chest x-ray showed evidence of the previous surgery and a high right diaphragm. The alkaline phosphatase was 4.5 B.U.; calcium, 11, and phosphorous, 2.9mg/100 ml. RBC was 4.27 million; hemoglobin, 13.0; WBC, 7,493 with 74% neutrophils, 22% lymphocytes, 1% monocytes and 3% eosinophils. The urinalysis was normal.

She responded well to bedrest and analgesics and was discharged after six days.

*Second Admission (five months later)* — She continued to have recurrences of her pain which was rather easily controlled until two months before this admission when the severity increased. She then noted that the pain was knife-like and when at its height caused her difficulty in breathing. For two weeks before admission the pain had been constant and was only temporarily relieved by analgesics. She also noted weakness and some nausea.

Physical examination was unchanged except that a large mass was now palpable which occupied the left upper quadrant and extended over the mid-line to the right pararectal line and down to the umbilicus. The mass was tender, smooth and firm to palpation. There was no peripheral adenopathy and the liver and spleen could not be palpated.

Chest x-rays and x-rays of the spine showed no change over that noted previously. An upper G.I. series was performed which showed the stomach to be displaced anteriorly and to the right. Urinalysis was again normal. The hemoglobin was 13.3 gm; WBC, 5,800 with 52% neutrophils, 44% lymphocytes and 4% eosinophils.

On the fourth hospital day a laparotomy was performed. The mass consisted of large retroperitoneal lymph nodes. They were described as being matted together and extend-

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Dr. Lang is a Senior Physician, Department of Medicine, Wilmington Medical Center.

ing down the vertebral gutter on both sides and upwards as far as could be felt. There were also enlarged nodes in the mesentery of the ilium. Microscopic examination showed a picture consistent with giant follicular lymphoma. She made an uneventful recovery from this surgery. On the ninth hospital day x-ray therapy was begun and completed after discharge.

*Third Admission (22 months later)* — She had intermittent symptoms during the period between hospitalizations. She experienced two episodes of Bells' Palsy which cleared spontaneously and recurrent girdle type pain for which she received additional x-ray therapy in May, 1965, and again in May, 1966. She also received intermittent courses of steroids and cytoxan; the amount and duration unknown. A short time before this admission she developed severe headache and confusion and so was readmitted.

Physical examination demonstrated no cranial nerve palsies; the deep tendon reflexes were present and equal and there was no adenopathy or abdominal masses felt.

RBC was 3.5 million with 10.6 gmHgb; WBC was 4,000 with 37% neutrophils, 17% band forms, 34% lymphocytes, 6% monocytes, 5% eosinophils and 1% basophils. Platelets were 118,000/cu mm. Urinalysis showed a trace of albumin and contained 40-45 WBC/hpf.

She was given x-ray therapy to the entire calvarium and at the time of discharge was said to be clearer mentally.

*Fourth Admission (one month later)* — The girdle type pain persisted and two weeks before this hospitalization she developed weakness of her legs, followed by bladder and bowel incontinence. Nausea, vomiting and dysphagia were present. Neurologic examination on admission disclosed a sensory level at the T8-9 dermatome with moderate weakness of both legs, and a neurogenic bladder.

On the seventh day a lumbar puncture was done followed by a myelogram. The fluid contained 100 WBC with 60% lymphocytes and 40% neutrophils. The protein was 239.7 mg/100 ml. Myelogram failed to disclose evidence of block or compression of the cord. On the tenth day x-ray therapy was begun over the thoracic cord and continued for 12 days. Nausea and dysphagia continued and on the eleventh day a barium swallow suggested the presence of esophagitis. No extrinsic pressure was present.

The patient was febrile from the third to the seventh hospital days with a maximum temperature of 101 F and was afebrile thereafter until the 24th day. At that time she developed chills, temperature up to 104 F and hypotension. Two blood cultures were positive for proteus and alpha streptococcus. Treatment was instituted with tetracycline, 100 mg every six hours, I.M., and continued for seven days. She then remained afebrile for the rest of her life but her condition continued to deteriorate. She developed basilar rales and tachycardia on the 35th day and became comatose and expired on the 37th hospital day.

Additional laboratory studies during this admission included RBC of 3.61 million with 11.2 gmHgb. Urinalysis showed 3+ albumin; 2+ glucose; a specific gravity of 1.012; RBC, 20-30, and WBC, 50-75/hpf. Urine culture grew out a proteus and an enterococcus both with plate counts of greater than 100,000 org/ml. G.I. series disclosed a normal stomach and duodenum.

### Differential Diagnosis

Dr. William J. Vandervort: It is of interest in our CPC that we start off with two tumors, both proven and identified by biopsy. The first tumor was a bronchial adenoma. These tumors make up approximately 6% of all neoplasms involving the lungs. It is felt that bronchial adenomas are derived from the mucosa of the bronchus or the mucous cells of the bronchus. In general, they involve the lower lobes and are more likely to be on the right side rather than the left in a proportion of three to two. I have asked Dr. Ashley to show a slide of the patient's bronchial adenoma to see whether it is truly a cylin-

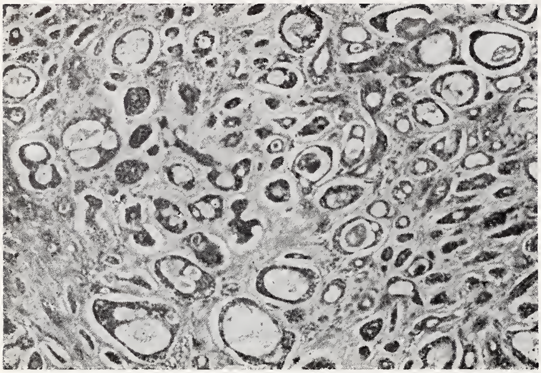

Figure 1

Bronchial adenoma, cylindromatous type. Note glandular pattern and small cyst formations.

droma or if it could be a carcinoid tumor. A carcinoid is about ten times as common as a cylindroma.

Dr. Ashley: This slide (Figure 1) reveals the adenoid cystic arrangement characteristic of the cylindromatous variety of bronchial adenoma. Other sections showed rather compact nests of cells suggestive of the caricinoid type. However, the overall features were more in keeping with a cylindroma. The term "bronchial adenoma" is a misnomer as these tumors are in reality slowly growing malignancies with capabilities of local and distant metastases.

Dr. Vandervort: It is extremely difficult microscopically to differentiate these two tumors. However, for the purpose of our case, I feel it does not matter because the patient had no manifestations of the carcinoid syndrome. It is generally felt that liver metastases are required before the typical syndrome is manifest. The metabolic studies to determine whether an excessive amount of serotonin was present were not performed on this patient. In a New England Journal CPC in February, 1968, it was stated that kinins cause the flushes and asthma of the carcinoid syndrome.[1]

To summarize, I accept the diagnosis of the bronchial adenoma of the right lung, possibly a cylindroma, but perhaps a carcinoid. However, I feel this tumor had no further influence on the patient's course.

Giant follicular lymphoma is the least common of the lymphomas and the most radiosensitive. It makes up about 6-12% of all cases of lymphoma. In the protocol, it states that the picture is consistent with giant follicular lymphoma, but it does not state unequivocally that the histology is giant cell. I have asked Dr. Ashley, therefore, to portray this patient's slide or a similar slide to show us the characteristics of this particular tumor. I also realize that it is difficult to differentiate this tumor from lymphoid hyperplasia.

Dr. Ashley: I would agree with Dr. Vandervort that in certain cases, it is extremely difficult, if not impossible to differentiate between follicular lymphoma and follicular hyperplasia. However, in recent years, a number of criteria have evolved that enable the pathologist to differentiate between these two conditions with more confidence and accuracy than in the past. Some of these differential points are illustrated. This slide (Figure 2) is from a lymph node showing follicular (reactive) hyperplasia. Note the disparity in size between the two follicles. This is characteristic. Also the follicles are widely separated and present a diagnostic "starry sky" appearance due to the large reactive reticulum cells within the germinal centers of the follicles. The next slide (Figure 3) is from the case under discussion. This was reported as diag-

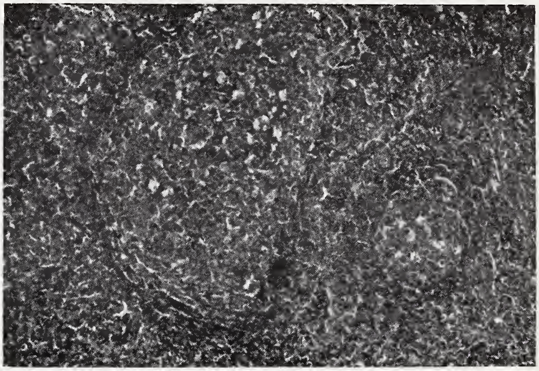

Figure 2

Follicular (reactive) hyperplasia. Note "starry sky" appearance.

nostic of follicular lymphoma but somehow in the protocol the words "consistent with" crept in. Most of the time I feel confident about my diagnosis, but how often the clinician prefaces them with "consistent with" depends, I suppose, on his faith or lack of faith in me (laughter). But getting back to the slide, please note the confluence of the follicles, their relative uniformity, and similarity of cells within and outside the follicles — all fairly characteristic features.

Dr. Vandervort: I would accept this as a giant follicular lymphoma. It would seem that the patient did respond to x-ray therapy. It is of interest that she never had peripheral adenopathy because 90-100% of patients do have peripheral adenopathy at some time in their course.

I reviewed the Memorial Hospital series of 1,269 cases of lymphoma.[2] Giant follicular lymphoma made up 12.8% of their cases; reticulum cell sarcoma, 43.6%; and small cell lymphosarcoma, 43.6%.

It is pertinent to the discussion of our case to realize that 3.6% of these patients had coexistent carcinoma; that 1.3% developed tuberculosis while under observation; 1.5% had a fungus infection at some time in their course, and monilia was the most common fungus. Seventy patients developed a virus infection; most of these were herpes zoster. Six patients developed sub-acute bacterial endocarditis.

Of the 1102 patients who received x-ray therapy, 2% developed serious complications such as pulmonary fibrosis. Of the 158 who received steroids, 10% developed serious complications such as ulcer disease and infection.

The treatment of Candida endocarditis was previously poor. Candida endocarditis had a mortality rate of 100%. With the advent of amphotericin-B, the mortality rate is 83%. In the JAMA, Februrary 26, 1968, Kay, et al,[3] report four cases of Candida endocarditis treated with surgical removal of the involved valve and replacement by a prosthesis. Three of these four patients were cured. Now that a treatment is possible, the diagnosis of Candida endocarditis must be pursued more vigorously than before.

One problem that bothered me with this patient was that at laparotomy, the nodes were found to be matted together. This is not a usual case with giant cell lymphoma. Usually the nodes are discrete. However, the behavior of the tumor was otherwise quite typical of giant follicular lymphoma and I am willing to accept that diagnosis.

I became concerned about hyperparathyroidism. You will note that on admission, the calcium was 11 and the phosphorus 2.9

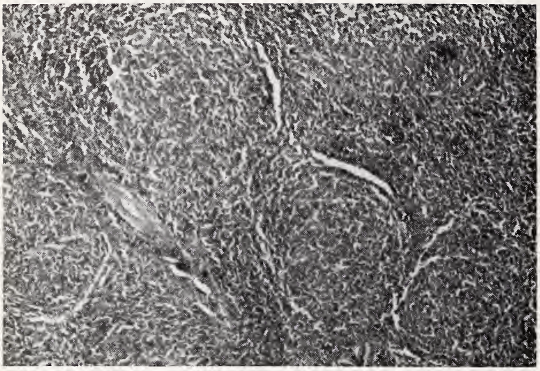

Figure 3

Follicular lymphoma. Note uniform, confluent follicles.

mg/100 ml. The patient's symptoms were consistent with osteoporosis of the vertebrae. At other times the patient had anorexia, nausea, vomiting, and mental confusion; all things that can be caused by elevated serum calcium. However, as I looked over the x-rays of the bones, I saw no areas consistent with this diagnosis, and in the absence of further study of the calcium metabolism, I was unable to make this diagnosis. In the Annals of Internal Medicine (January, 1968), an article by Nugent[4] discusses how difficult it is to diagnose hyperparathyroidism with any test. The highest correlation was only 80% in known patients, and he felt the best way to diagnose it is by suspecting the diagnosis and by the clinician's intuition. Thus, I will not make that diagnosis in this case.

I have looked for a third malignancy but am unable to find evidence to make that diagnosis. I find the changes in the esophagus are those of esophagitis, possibly due to x-ray therapy and possibly secondary to sterioid therapy; ie, small ulcerations, etc.

I feel the patient had a bout of pyelonephritis, with septicemia due to proteus organisms. This diagnosis would seem unequivocal. The therapy was apparently helpful in controlling this septicemia.

The possibility of SBE must be considered because of the alpha-streptococcus in the blood stream and enterococcus in the urine. There was no evidence of peripheral embolization and no heart murmur was described. I realize the spleen may not have enlarged because of the prior x-ray therapy. SBE is always something to consider in this setting, but I am unable to confirm its presence in this case.

Tuberculosis can strike a patient who has little resistance remaining. The cerebral-spinal fluid in this case had some suggestion of that found in tuberculosis, but the chest x-ray shows no tuberculosis and smear and culture of the spinal fluid did not reveal tuberculosis, so I feel that it was not present in this patient.

I consider the possibility of cryptococcosis. The spinal fluid is consistent with that diagnosis, but I see no evidence that an India ink preparation was performed and lymphocytes in the spinal fluid can be fungi mistaken for lymphocytes; although I will not make this diagnosis, the spinal fluids should have been stained for India ink.

We now are left with the disease of the central nervous system. We have to explain two findings; 1) a localized level at the cord at T-8, and 2) an abnormal spinal fluid. The patient's spinal fluid was not the tumor triad (yellow spinal fluid, very high protein. and coagulation of the spinal fluid). The patient

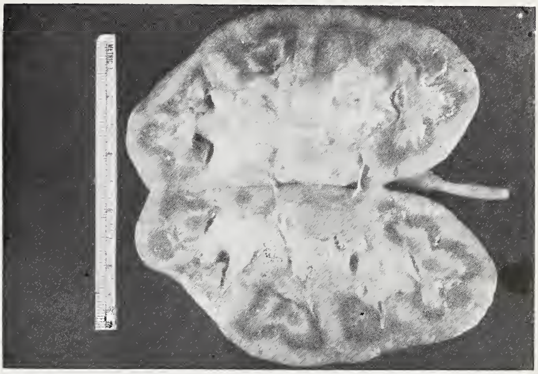

Figure 4

Kidney showing papillary necrosis of distal two-thirds of pyramids.

did not have localizing signs which would suggest tumor in the cerebrum or cerebellum. I feel, therefore, that the patient had a transverse lesion at T-8. The question is, was that a transverse myelitis or a transverse myelopathy?

I favor myelopathy as opposed to myelitis. I do not feel the transverse myelitis was caused by tuberculosis, by fungi, by bacteria, nor by a viral illness. In preparing for this CPC, I read Lord Brain's description of the neurological complications of neoplasms.[5] I also reviewed Wilkinson's "Carcinomatous Neuromyopathy."[6] In general, three syndromes are described. One is the myopathic-myasthenic syndrome. The second is progressive multifocal leukoencephalopathy. This is usually associated with normal spinal fluid and has multiple lesions of the white matter. The third type is the type I think was present here in the carcinomatous-encephalomyeloneuropathy.

In these cases at post mortem, tumor is not found in the cord, so it is felt that the change represents either a toxic change or an unrecognized viral infection. Why should this patient have had the reaction she did in the spinal fluid? I do not feel that she had a tumor meningitis because tumor cells were not seen in the spinal fluid and I do not feel her course was consistent with that diagnosis. I feel the myelopathy itself could cause this change in the spinal fluid.

I do not feel this was a radiation myelopathy because atrophy of the cord was not reported on the myelogram. The dose of radiation was not given but I doubt if a dose of that magnitude was administered to the patient especially in view of her clinical course. Also, radiation myelopathy is usually asymmetrical and not accompanied by pleocytosis.

I am still very wary of a fungus infection, especially monilia and I would not be surprised to find monilia as a super-infection at post mortem.

### Dr. William J. Vandervort's Diagnoses

In summary, my diagnoses are: 1) bronchial adenoma, cylindroma type, 2) giant follicular lymphoma, 3) pyelonephritis with septicemia secondary to proteus, 4) myelopathy at T-8 secondary to malignant disease, and 5) possibility of a superinfection of monilia.

A Physician: Can you rule out myelitis secondary to radiation therapy?

Dr. Vandervort: No, this cannot be ruled out. The timing would be consistent with that diagnosis but one would be unable to make that diagnosis without knowing the dose of radiation received by the cord. It is my understanding that that dosage is usually over 5000

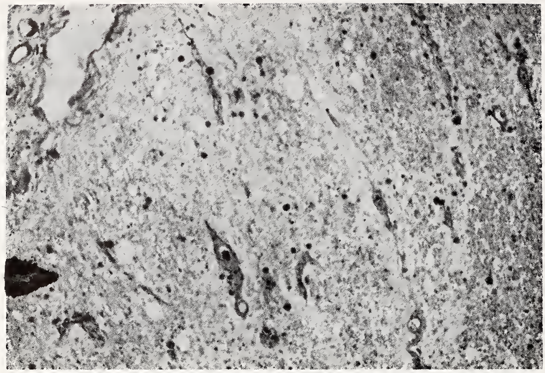

Figure 5

Spinal cord showing vacuolar degeneration with increased vascularity and thickening of small vessels.

rads. Also, radiation myelopathy tends to be asymmetrical and the protein in the spinal fluid is increased but not usually the cells.

Dr. Frelick: Esophagitis may be due to monilia. Could emboli cause the cord symptoms?

Dr. Vandervort: Yes, the esophagitis may well be due to monilia, I have seen that before. I do not feel emboli caused the cord symptoms because this would mean the patient had a solitary embolus. If other emboli had been present, that would be more likely.

Dr. Wendel: Why did the pain present earlier go away without therapy if it was due to lymphoma?

Dr. Vandervort: I feel cancer pain may diminish with analgesics such as Darvon. A number of patients with breast cancer who have bone pain may be comfortable at times with just analgesics. The fact that the pain improves with analgesics does not mean that it is not caused by cancer.

Dr. Nelson: Another possibility is carcinomatous meningitis with the meninges involved by plaques of cells. This can give a transverse myelitis type of lesion. The malignant cells in the cerebral-spinal fluid may easily be mistaken for lymphocytes.

Dr. Vandervort: I agree. That possibility must be considered. No tumor cells were seen in the cerebral-spinal fluid. Another factor against this is that the lesion is just at one level.

Dr. Ashley: Could x-ray therapy one month before cause pleocytosis?

Dr. Vandervort: That is possible. I have no statistics to reply factually.

Dr. Chavin: Why look for a collapsed vertebrae with hypercalcemia.

Dr. Vandervort: Hypercalcemia may represent hyperparathyroidism or metastatic carcinoma to bone. I would also suspect one of the endocrine abnormalities that accompanies some carcinomas especially the carcinoma of the lung. This is why one should look for osteoporosis or vertebral collapse.

Dr. Reese: There can be an increased cell count in the cerebral-spinal fluid from carcinomatous meningitis with or without transverse myelitis.

Dr. Vandervort: Does tumor meningitis cause localized CNS symptoms or just generalized symptoms?

Dr. Reese: Usually only the cranial nerves suggest the localized symptoms.

Dr. Lang: Dr. Hines, did the physicians who treated this patient feel she had lymphosarcoma or giant follicular lymphoma?

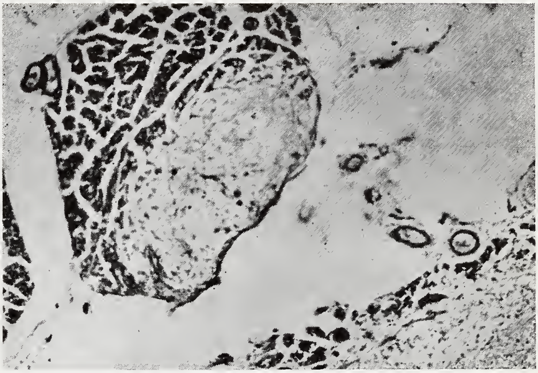

Figure 6

Spinal cord nerve root. Note pale area of myelin degeneration.

Dr. Hines: Most giant follicular lymphoma cases progress to reticulum cell sarcoma. Dr. Vandervort gave an interesting and penetrating analysis of this case and pretty much agreed with our diagnosis and treatment rationale over the years. We supposed the patient had lymphomatous infiltration of the calvarium without localizing signs. This is why she received x-ray therapy to the cranium. The radiation dose which was received by this patient was under the levels of dosage at which radiation myelopathy have been reported; roughly 1900 rads in air in three weeks to the upper spine in 1965, with retreatment with 1400 rads in 1967.

## Pathological Discussion

Dr. Patrick F. Ashley*: The immediate cause of death was proteus septicemia secondary to acute pyelonephritis. The pyelonephritis was of a type referred to as papillary necrosis or necrotizing papillitis (Figure 4). The distal two-thirds of the pyramids presented a yellowish grey necrosis resembling infarctions. This condition is usually associated with urinary tract obstruction and diabetes but interstitial sclerosis and analgesic abuse are also considered to be disposing factors. The urinary tract infection in the case was probably associated with the neurogenic bladder. This in turn was a result of a myelopathy, specifically I believe, a radiation myelopathy. The entire spinal cord was exposed and there was no evidence of extramedullary or intramedullary tumor tissue. The microscopic sections revealed widespread degenerative changes especially in the lumbo-dorsal regions. All portions of the cord were involved with spongy degeneration and vacuolization and some fibrous thickening of the leptomeninges. There was an increase in capillaries and arterioles with hyaline thickening of these vessels (Figure 5). Myeline degeneration was observed in some of the nerve roots (Figure 6). The changes were attributable to radiation damage.

Recently Reagan et al[7] reviewed the subject of radiation myelopathy and reported ten cases. They used the following classification: Radiation Myelopathy Major Syndromes

1. Transient—Purely subjective; mild sensory symptoms. May be most common form.

2. Lower Motor Neuron Disease—This syndrome exceedingly rare.

3. Acute Paraplegia or Quadriplegia—Presumably result of infarction of spinal cord. Extremely rare.

4. Chronic Progressive Radiation Myelopathy—Most common and only one for which pathologic confirmation exists.

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* Dr. Ashley is a Senior Pathologist, Wilmington Medical Center.

In their series, the average calculated radiation dose to the cord was 5,700 rads. In the present case, a calculated dose of 6,280 rads was administered prior to the onset of symptoms.

Sixty-two cases of chronic radiation myelopathy have now been reported. The neurological symptoms on an average developed fourteen months after radiation therapy. In most patients, the disease began with sensory symptoms in one or both lower extremities. Burning parathesias and inability to perceive pain and temperature were common. Within six months, multi-system cord disease developed with muscle weakness, sensory impairment, and bowel or bladder dysfunction or both. The prognosis was poor. Approximately one half of the patients died and many others became severely disabled. Death usually occurred from respiratory and urinary tract complications. In the differential diagnosis, intramedullary and extramedullary tumors and carcinamotous myelopathy should be excluded.

The case was also of interest in that the patient was apparently cured of the two malignancies, yet nevertheless succumbed. There was no evidence of residual lymphoma and the so-called bronchial adenoma (cylindromatous carcinoma) with hilar lymph node metastases was successfully resected surgically.

**Anatomical Diagnosis:**

1. Bilateral pyelonephritis with acute necrotizing papillitis.
2. Proteus septicemia
3. Radiation myelopathy

Dr. Vandervort: I will agree that myelopathy was found at post mortem. I still do not feel we have proven the type. In the 61 cases that you have quoted, the dosage was 2-3 times the dosage this patient probably received. In Brain's article, he states that the essential lesion was a striking loss of dorsal root ganglion cells, a corresponding loss of fibers—a very severe degeneration of the dorsal columns. He quotes Wilkinson, "Degeneration loss of cells — coupled with loss of fibers—degeneration in loss of motor neurons in the spinal cord—cellular infiltration of the meninges and perivascular cuffing of the vessels of the spinal cord." Thus, the patient had myelopathy, we all agree. Whether it was due primarily to the tumor or the treatment is still in dispute.

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## ANSWER TO INTERESTING ELECTROCARDIOGRAMS (Page 285)

1. Rhythm is the so-called "coronary sinus rhythm." This, in my opinion, is an unfortunate term because it merely means that the impulses are originating near the coronary sinus (right atrium) and has *nothing to do* with coronary disease. Its characteristics are (1) inverted P waves in leads 2, 3, and aVf with (2) normal PR interval. It is seen with (1) digitalis overdosage or (2) allergy.

2. QRS suggest slight left ventricular hypertrophy although R wave is only 19 mm in lead V-5. Q waves physiologic.

3. U waves suggest electrolyte imbalance but are not diagnostic. Many bizarre changes have been reported following CVA but, again, none is diagnostic.

# Highlights

## IMMUNOPROPHYLAXSIS OF VIRAL DISEASE

Fred R. McCrumb, M.D. — *University of Maryland School of Medicine. Medical Conference, WMC, May, 1968*

The concept of employing live attenuated virus to produce immunity against viral disease began with Yenner's concept of controlling smallpox by inoculating cow pox. The vaccinia virus which has subsequently been used for this purpose is antigenically similar to the smallpox virus and thus produces an infection which produces immunity against smallpox infection.

Today, many investigators still feel that intentional inoculation with a live but attenuated virus remains the best method of controlling viral disease. It has been conspicuously successful in control of poliomyelitis, although there remains some controversy whether immunity thus produced is comparable to the natural immunity of a spontaneously acquired infection.

Mass campaign to inoculate with attenuated live polio virus began in 1960. Evaluation of international experience must include consideration of the size of the susceptible group, the percentage of the susceptibles vaccinated on the initial program, and the endemic circumstances in the specific country; that is, prevalence and rate of transmission of the disease, as well as the specific type of vaccine used in the experiment. Objectives in vaccination are two-fold: total eradication of disease in a given area and prevention among individuals. With certain diseases interruption of transmission within a large population will effectively result in eradication. Although there is a high degree of susceptibility to smallpox in this country, measures resulting in smallpox control have essentially resulted in eradication of smallpox as a disease despite the enormous numbers of population who have no vaccination protection against smallpox.

During the initial polio immunization campaign with live virus vaccine in Czechoslovakia in 1960, over 90% of the population, age two months to fourteen years, was vaccinated with a repeat dose in one year. After July of 1960 there was not one case of polio of local origin in Czechoslovakia. Similar results with polio immunization have been obtained in other countries with high incidence of immunization. In Belgium a slightly lower percentage was immunized with the same almost complete obliteration of the disease, indicating that the percentage of populace which needs to be vaccinated in order to interrupt the transmission of the disease may vary according to the endemic conditions of infection. In Italy, for example, the climate being warmer more naturally favors the transmission of polio and there have indeed been more cases despite similar percentage vaccination in southern Italy as in northern Italy indicating that the transmission of disease has not been as well interrupted because of the more favorable conditions for transmission.

Mass vaccination therefore will not break the chain in high prevalence areas unless a high percentage of the population is vaccinated. In the United States immunization of somewhat less than two million people has virtually eliminated poliomyelitis as a clinical problem although large numbers of children remain unvaccinated. It is estimated that only 47% of children from one to four years have had complete immunization with all three strains of live polio virus. However, the incidence of paralytic cases in the United

States has dropped from 5000 in 1959 to 66 cases in 1966. Fifty-three of these 66 cases were from one area of Texas and occurred in an immigrant population with low vaccination incidence.

In Israel where all the natural conditions favoring high level transmission are present, a rigid vaccination program has virtually eliminated clinical disease despite its high incidence in the surrounding Arab population.

Studies of smallpox in Pakistan and antibody response to vaccination have recently demonstrated that an immune response to vaccination may occur without any cutaneous lesion at the site of vaccination. Epidemiology studies for accuracy must therefore depend on serologic techniques rather than evaluation of presence or absence of vaccination reaction. The variola virus is complicated antigenically; there are more than 15 separate antigen bands by agar gel precipitin test. It may be that further study will identify the particular protein which is the protective antigen against smallpox at which time epidemiologic studies will be improved.

Another virus disease which has been widely studied is rubella. At the present time it is felt that the anomaly rate from infection with rubella is as high as 50% during the first month of the first trimester. Unfortunately, there is a high rate of inapparent infection which requires serologic study for diagnosis and a large number of an exposed group may actually not be infected during an epidemic so that they remain susceptible to rubella. The rubella virus vaccine is prepared from a virus obtained after 77 passages in the African green monkey. There is no discernable clinical response to it although the virus is shed profusely from the nasopharynx of those immunized with it. It raises the distinct possibility of complete eradication of rubella.

Studies of inactivated measles virus vaccine have recently demonstrated an unfortunate occurrence of a hypersensitive state in those children originally vaccinated with this vaccine. This has resulted in a severe pulmonary inflammation at the time of natural virus exposure. This does not mean that inactivated virus vaccines per se are bad but rather that that the early vaccines may not have been sufficiently pure antigenically. After some seven years of measles vaccine experience it is becoming apparent that the immune response from it is as good as that from naturally occurring virus and the initial concern that measles might be postponed to later life rather than obliterated entirely by administration of the vaccine has turned out to be an unnecessary worry. It is now demonstrated that the antibody level against measles remains high even in a closed population which has no continued exposure to live virus.

Mumps vaccine has been worked on by many laboratories for many decades. The vaccine with inactivated virus did not produce an immunity of sufficient length and therefore did little more than postpone the prospect of natural disease to an age of greater clinical danger. The Hilleman strain, isolated by Dr. Hilleman from his daughter Jeryl Lynn and named by him for her, produces excellent long-lasting immunity with no clinical reactivity.

In summary it is reasonable to say that much progress has been made in the epidemiology and prophylaxis of virus disease. At the present time it is important that all concerned with the public health aspects of virus disease give adequate consideration to the concept of eradicating these diseases completely rather than merely producing a high index of immunity in certain phases of the population.

## WHO SAID IT?

"Health of mind and body is so fundamental to the good life that if we believe men have any personal rights at all as human beings, then they have an absolute moral right to such a measure of good health as society and society alone is able to give them." John Gardner? Wilbur Mills? Lyndon Johnson None of these. *Aristotle*, about 2300 years ago.

# President's Page

## THE MEDICAL SCHOOL PROGRAM

John B. Truslow, M.D., the former Dean of the Medical College at the University of Texas, is currently serving as consultant on medical affairs for the University of Delaware. He has contributed valuable help and suggestions in his meetings with the Medical School Committee of the Medical Society of Delaware.

Doctor Truslow has proposed a joint program which would provide affiliation of the University of Delaware and the Wilmington Medical Center with Jefferson Medical College for the purpose of making medical education available to Delaware students. The estimated cost of such a program is considerable and would be met primarily by Delaware tax funds since only a fraction of these costs could be defrayed by tuition charges. By comparison with the estimated costs for starting an independent two-year or four-year medical school, Doctor Truslow's proposal would be a bargain. In addition it would require years to establish an independent school of the quality exhibited by the five medical schools near our state.

The Truslow plan would assure twenty available places each year for Delaware residents, qualified by premedical training at the University of Delaware, for admission to the freshman class at Jefferson Medical College. I hope that other Delaware residents who take their premedical training at schools in other states might also be acceptable in this program. After preclinical work at Jefferson Medical College, the Delaware students would be given clinical training at the Wilmington Medical Center. Presumably some of the medical staff of the Wilmington Medical Center would be given faculty appointments on the Jefferson staff.

It is hoped that Delaware medical students in the Truslow program would seek internships and residencies in our state and would then locate their practices here, bringing to us the much needed increase of physicians in Delaware.

I believe the Medical Society of Delaware should approve Doctor Truslow's proposal and recommend that full support of the membership be given to expediting this plan because it offers a logical scheme for establishing an efficient medical educational program for Delaware in the least time. To facilitate this action we should urge the Governor of Delaware, members of our State Legislature, and the new president of the University of Delaware to act as quickly as possible to attain this goal.

As soon as the plan is inaugurated, the Medical School Committee of the Medical Society of Delaware should be retained to work with the three institutions in continuing to update the plan and to evaluate and consider the need for a four-year school in Delaware in light of the success of the proposed plan.

Daniel J. Preston

# Delaware Academy of General Practice

## SEMINAR ON HALLUCINOGENIC AGENTS AND YOUTH

The Delaware Academy of General Practice in cooperation with the Medical Society of Delaware will present a Seminar on Hallucinogenic Agents and Youth, Saturday, October 12, 1968. The all day seminar will be held at the Delaware Academy of Medicine, and is approved for five hours AAGP credit.

### PROGRAM

9:30 A.M. Registration and Coffee  
9:50 A.M. Welcoming Remarks  
Moderator, Morning Session  
Joyce A. Z. Pearson, M.D.  
10:00 A.M. "*Psychosocial Aspects of Drug Abuse Among Youth*"  
Irwin G. Weintraub, Ph.D.  
Consulting Psychologist  
Wilmington, Delaware  
10:50 A.M. Questions  
11:00 A.M. "*Epidemiology and the Management of Drug Abuse Among Youth*"  
Miss Helen H. Nowlis, Director  
Drug Abuse Program  
National Association of Student Personnel Administrators  
University of Rochester  
Rochester, New York  
11:50 A.M. Questions  
12 noon Luncheon  
Moderator, Afternoon Session  
William J. Vandervort, M.D.  
1:00 P.M. "*Pathopharmacological Effects of Drugs*"  
Howard I. Weinstein, M.D.  
Food and Drug Administration  
Washington, D. C.  
1:50 P.M. Questions  
2:00 P.M. "*Drug Abuse in Delaware*"  
Detective Angelo Citro  
Delaware State Police  
2:50 P.M. Panel Discussion

Coffee and sweetrolls will be served by the New Castle County Chapter of the Delaware Association of Medical Assistants

## TENTATIVE PROGRAM PLANNED FOR 1969 STATE OFFICERS CONFERENCE

Members of the 1969 State Officers Conference Committee met in Kansas City, August 11, to develop a tentative program outline for consideration by the AAGP Board.

The 1969 SOC will be held April 19 and 20 at the Muehlebach Hotel in Kansas City incorporating the theme of "baseball."

The committee adopted a recommendation that the Board of Directors consider establishment of a workshop for state executive secretaries, either in conjunction with the annual SOC or at another time.

The committee also granted a request of the Public Relations Committee that the 1969 SOC "Idea Fair" be based entirely on a public relations theme, and that the PR Committee assume responsibility for the exhibits.

## CLOSER THAN WE THOUGHT?

"Re-examination of the rate of evolution of the albumin molecule in primates suggests that man and the African apes may have begun diverging from their common ancestor as recently as five million years ago. Previous estimates have ranged from four to 30 million years . . . The many features of morphology, particularly in the thorax and upper limbs, which man and the living apes share in varying degrees, . . . are seen as due to recent common ancestry and not, as generally accepted, to parallel or convergent evolution." (Excerpted from Dateline in Science, Jan. 1968.)

# Editorials

## THE CASUAL CATHETER

Bladder catheter care need not concern the physician whose hospitalized patients never require an indwelling catheter. To the remaining 99% of us, catheterization of patients for more than a few days results in our subjecting them to a 10-to-100% chance of urinary infection. A recent review of hospital-acquired infections in an excellent Baltimore hospital showed that about four percent of their hospitalized patients acquired an infection. The urinary tract accounted for fully 40% of the infections and about 84% of these patients had been catheterized very recently. Gram-negative septicemia still constitutes a major problem and the urinary tract is one of the major portals of infection. In addition, catheterization may result in chronic pyelonephritis or even terminal renal failure.

Various means of reducing the risk of infection in catheterized patients have been reported frequently during the past ten years. How well are we in the Wilmington area doing with our catheter care? A charitable answer to this question would probably have to be "poorly." Flagrant violations of good catheter care can be seen daily in every hospital in the area. Most of the violations consist of unnecessary separations of the catheter from the drainage system and careless emptying of the drainage bag contents which results in contamination of the bag. Bacterial contamination of the drainage bag is likely to be followed by spilling the infected urine into the drainage tubing and then into the urinary bladder. The local problem exists mainly because meticulous maintenance of a closed sterile drainage system simply has not permeated medical and nursing habits. Catheter care is usually relegated to the least sophisticated medical helpers in the hospital.

The issue cannot be avoided by assuming that infection accompanying an indwelling catheter is inevitable or that it can be prevented by prophylactic antibacterial agents. These propositions have been refuted too many times to require detailed documentation.

With present hospital organization and areas of overlapping committee responsibility, it is increasingly difficult to effect needed changes in equipment, training, etc. Without resorting to a full scale study and the issuing of detailed regulations, the local incidence of hospital-acquired urinary infection can be reduced by adherence to a few simple rules:

1. Avoid indwelling catheters if possible.
2. Consider suprapubic needle puncture of the full bladder to obtain urine cultures or to decompress an acutely distended bladder.
3. Use the smallest catheter size practical — such as 14 or 16 F.
4. Use only sterile closed drainage systems.
5. Abolish the use of the leg drainage bag for hospitalized patients.
6. Obtain urine cultures in catheterized patients as one would perform a venipuncture — by needle aspiration of the catheter itself rather than by clamping and disconnecting the catheter.
7. Obtain timed urine specimens (such as for PSP tests) by emptying the entire drainage system and making collections from the bottom of the bag after each time period.
8. Use sterile techniques in emptying the urine drainage bag.
9. Use frequent mechanical cleansing of the urethral meatus and adjacent catheter by some solution such as Zephiran.
10. Avoid irrigation of catheters except for the specific indication of physical blockage.
11. Think of the catheter and drainage system as an extension of the urinary tract and treat it in as sterile a manner as one would an open bladder at surgery.

If it is necessary to insert a retention catheter in the urinary bladder, proper care of the drainage system should reduce the infection rate significantly. The casual insertion of a catheter and casual care of the drainage system are simply no longer acceptable.

*J. H. F.*

# In Brief

### Mycoplasma Laboratory Service

Physicians in the State of Delaware and nearby areas of adjacent states are invited to utilize the services of the Mycoplasma Laboratory in the Infectious Disease Research Laboratory of the Wilmington Medical Disease Center.

During the period from August 1966 through March 1968, 373 patients with pneumonia were studied for the presence of infection due to *Mycoplasma pneumoniae.* Sixty-three patients (16.9%) had evidence of mycoplasma infection as determined by one or more parameter. The Mycoplasma Laboratory has been studying patients for infection with *M. pneumoniae* by attempting to isolate the organisms from throat swabs on artificial culture media, by examining patients' sera for complement fixing anti-bodies against *M. pneumoniae*, and by examining for rise in titer of cold agglutinins. During the fall and winter of 1968-69, one additional test will be added to the diagnostic armamentarium. Throat swabs will be smeared directly onto glass slides and stained with a fluorescent conjugate specific for *Mycoplasma pneumoniae.* If fluorescent organisms can be demonstrated in or attached to cells, a rapid diagnosis of *M. pneumoniae* pneumonia can be made.

Since this is a new procedure which has never been attempted before, the Medical Center is anxious to obtain as much experience as possible. Therefore, it will welcome the opportunity to study as many patients as possible.

### Speakers on "Ask the Doctor"

Speakers for October, 1968, on the Tuesday Radio program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Oct. 1, William Shellenberger, M.D., *Geriatrics*; Oct. 8, Howard Wilk, M.D., *Ulcer Disease*; Oct. 15, David L. Schafer, M.D., *Muscle Problems in Children*; Oct. 22, Lawrence Katzenstein, M.D., *Fungus Infections*; Oct. 29, Winder Porter, M.D.. *Venereal Disease.*

### Seaford Seminars

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 pm on the second and third Thursdays of each month from September, 1968, through June, 1969:

Oct. 8, *Trauma and the Lumbar Disc*, Joseph A. Arminio, M.D.

Oct. 15, *Treatment of Chronic Obstructive Pulmonary Disease*, James A. Hofford, M.D.

### State Fluoridation

Delaware's Flouridation Law became effective in June making it the fourth state to take legislative action on the public health measure. The other three states are Connecticut, Minnesota and Illinosis. Puerto Rico is the first country in the world to initiate fluoridation by legislation. Kentucky and Michigan are expecting to pass the fluoridation legislation in the near future.

### Volunteer Physicians for Viet Nam

At the close of 1968, 483 physicians had served 60-day service tours under this voluntary program and contributed more than 80 man-years of voluntary service. In the call of the states, Delaware has only one physician who so served; John M. Levinson, M.D.

**The Month in Washington**

President Johnson signed into law the Health Manpower Act of 1968 which extends until June 30, 1971, and expands the federal programs of aid to medical and allied health schools.

Other legislation enacted into law: 1) establishes a National Eye Institute as part of the National Institutes of Health; 2) requires federal buildings to provide easy access to the handicapped; 3) authorizes standards to prevent gas lines from leaking and exploding. Schools of pharmacy and veterinary medicine were made eligible for the first time.

Both the Democratic and Republican 1968 national campaign platforms cited the importance of the role of private enterprise in the development of government health programs. The GOP placed greater emphasis on private medicine than the Democratic party did.

"While believing no American should be denied adequate medical treatment, we will be diligent in protecting the traditional patient-doctor relationship and the integrity of the medical practitioner," the Republican plank said.

The Democrats indicated support for universal government health insurance or, at the least, wide expansion of medicare or medicaid (or both). It also said medical costs could be lowered by more out-of-hospital care, comprehensive group practice arrangements, increased availability of neighborhood health centers, and the greater use of sub-professional aides.

**Drug Study**

The FDA and the Pharmaceutical Manufacturers Association differed as to the significance of the findings of a Georgetown University School of Medicine team after studies comparing three brand-name drugs with their generic versions. Drugs tested were diphenylhydantoin, prescribed for treatment of epilepsy, chloramphenicol and sulfisoxazole. The studies supported by the FDA showed: 1) Some generic drugs are absorbed more slowly by the body than the brand; 2) At least one generic drug was absorbed faster by the body than the brand drug; 3) Absorption rates were governed by such factors as crystal size of the drug, hardness of tablets, and the types of drug capsules.

"The studies by Dr. Martin and his research team, showing how different versions of the same drug behave differently in man, provide further proof of the scientific fact that these differences can be significant in patients," said C. Joseph Stetler, PMA President.

The FDA agency in no sense concluded that "generic" drugs are less effective as a class than "brand-name" products. It felt the study is completely unwarranted in reaching any general conclusions about drug equivalency on the basis of these exploratory studies.

**Smoking and Health**

The 1968 supplemental report on Smoking and Health of the Surgeon General of the Public Health Service reaffirmed that cigarette smoking is a health hazard.

- Cigarette smoking can contribute to the development of cardiovascular disease and particularly to death from coronary heart disease.
- New evidence that the previous finding that cigarette smoking is the most important cause of chronic bronchopulmonary disease in the United States.
- Additional evidence that cigarette smoking is a main cause of lung cancer in men and is casually related to lung cancer in women.

**New Doctors**

Graduated from U. S. medical schools in June, 1968, were 7,960 new physicians, an increase of 217 over last year. The U. S. physician population total is now past 315,860.

## CLINICAL NOTICES AND MEETINGS

**Nutrition Conference**

The Committee on Nutrition and Metabolism of the Philadelphia County Medical Society will hold its 13th Annual Conference on October 23, 1968, in the Auditorium of Temple University Medical Center. For further information, write: Dr. Michael G. Wohl, Chairman, Committee on Nutrition and Metabolism, Philadelphia County Medical Society, 2100 Spring Garden St., Phila., Pa. 19130.

**Neuromuscular Diseases**

The New York University Post-Graduate Medical School offers a full-time basic course on *Clinical Electrodiagnosis of Neuromuscular Diseases,* October 9-11, 1968, at the Institute of Rehabilitation, Medicine Research Pavilion, New York University Medical Center, 400 East 34th Street, New York. Fee is $125.00. For further information, write: New York University Post-Graduate Medical School, 550 First Avenue, New York, N. Y. 10016.

**American Academy of Pediatrics**

The 37th annual meeting of the American Academy of Pediatrics will be held at the Palmer House, Chicago, Illinois, on October 19-24, 1968.

**Office Gynecology Course**

The Jefferson Medical College will present an evening course in *Office Gynecology* at the Jefferson Hall, Room 207, 11th and Locust Streets, Philadelphia, at 7:30 P.M., November 12 - December 17, 1968. For details, write: John H. Killough, M.D., Associate Dean, Jefferson Medical College, 1025 Walnut Street, Phila., Pa.

**Educational Health Conference**

The Delaware New Castle County Industrial Nurses Association Second Annual Educational Health Conference will be held at Wilcastle Center, 2800 Pennsylvania Avenue, Wilmington, on Saturday, October 5, 1968. Moderators will be J. Richard Zahn, M.D., and H. Thomas McGuire, M.D.; Donald Shetman, M.D., will speak on *Dermatitis in Industry.*

**Postgraduate Course**

The Johns Hopkins University School of Medicine and the Maryland Chapter of the AAP will co-sponsor a postgraduate course on *Difficult Problems in Pediatrics and Pediatric Surgery,* October 10-12. For additional information, write: J. Alex Haller, Jr., M.D., The Johns Hopkins Hospital, Baltimore, Md. 21205.

**American College of Surgeons**

The American College of Surgeons 54th annual Clinical Congress will be held October 14-18, 1968, in Atlantic City.

**American Society of Anesthesiologists**

The Annual Session of the American Society of Anesthesiologists will be held in Washington, D. C., October 19-23, 1968.

**American College of Physicians**

The American College of Physicians announces the following post-graduate courses:

Oct. 7-11, 1968, *Basic Mechanisms in Internal Medicine,* Medical College of Virginia, Baruch Auditorium, Richmond, Virginia.

Oct. 21-25, 1968, *Current Concepts of Neurology: Diagnosis and Treatment,* University of Maryland School of Medicine, University College Building, Greene St., Baltimore, Maryland.

Oct. 28 - Nov. 1, 1968, *Rheumatic Diseases; Pathology, Immunology, Diagnisis and Treatment,* Robert B. Brigham Hospital, Boston, Mass.

Fees are: ACP Members, $60, Non-members $100.

For information, write: Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine St., Philadelphia, Pa.

The ACP, New England Regional meeting will be held at Kellogg Auditorium, Dartmouth Medical College, Hanover, N.H., October 4-5, 1968.

**Psychiatry Course**

The 12th Annual Postgraduate Basic Course in *Office Psychiatry and Psychosomatic Medicine* conducted by the Department of Psychiatry, Temple University Health Sciences Center and St. Christopher's Hospital for Children will meet very Wednesday, October 2, 1968, through February 26, 1969. This course is approved for 80 hours AAGP credit. Fee: $40.00. For details, write: Barney M. Dlin, M.D., Director, 230 West Allen's Lane, Phila., Pa. 19119.

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

## DRUG ABSTRACTS

### MEASLES VIRUS VACCINE, LIVE, ATTENUATED

**Prior Recipients of Inactivated Vaccine**

In 1961-1962 a group of children participated in a large-scale measles vaccine trial. Each child received two doses of inactivated (killed) measles virus vaccine at monthly intervals followed in one month by attenuated (live) measles virus vaccine without gamma globulin. The seroconversion rate was 90.5 per cent. But by 1965 seven of 15 children (47 per cent) immunized in this manner had lost detactable serum antibody and three had developed typical measles upon exposure to the natural disease. These findings prompted re-immunization of former recipients of the inactivated-attenuated measles vaccine series with a second dose of attenuated virus vaccine. Of 41 patients reimmunized, 19, (46 per cent) developed local reactions of erythema, tenderness, and induration at the site of injection. Disability of significant degree was noted in ten (24 per cent). Assessment of the risks involved in the use of killed virus vaccine is not merely academic, as an unknown number of children have received inactivated measles virus vaccine. The authors conclude: "Taken together, the local reactions reported here and the accumulating experience following natural exposure appear to place a severe limitation upon the use of inactivated measles virul vaccines. It is our belief that *no* healthy child should receive inactivated vaccine until the mechanism of the altered reactivity and its full implication for the immunologic responsiveness of the child is accurately defined."

Fulginiti, V. A. et al. *(Univ. Colorado Med Center)*, Am. J. Dis. Child. 115:671 (June), 1968.

### New Burn Compound Receives Wide Trials

Wider clinical trials are now being undertaken with silver sulfadiazine for patients with extensive deep burns.

The drug, developed in the laboratories of the College of Physicians and Surgeons, Columbia University, New York, has been found to control pseudomonas infection "more effectively than silver nitrate or sulfamylon."

Dr. Charles L. Fox, in a paper presented to the American Medical Association meeting, reported that the compound functions via "a new mechanism of antibacterial action."

The drug, applied as an ointment, is painless and non-toxic, and the wounds do not darken. Skin areas treated with the compound were ready for early grafting and these took well over the treated areas, he said.

In a comparative study of silver nitrate in 0.5% solution or ointment, sulfamylon acetate, and silver sulfadiazine 1%, mortality of burned animals was 67%, 90%, and 5%-25% respectively.

In another trial at Columbia Presbyterian Medical Center and Bellevue Hospital, 25 patients were treated. In the many cultures made from these patients' burns, there was either no growth of saprophytes, or growth of some but no pseudomonal organisms. All blood cultures were sterile.

"The management of severely burned patients was greatly simplified," Dr. Fox said. Gowns and masks were not worn. Sufficient drug remained in the wounds to permit changes of dressing on alternate days. No supplementary fluids or electrolytes were indicated and no metabolic, renal, or respiratory complications were observed in any patients.

*Antibiotic News Vol. 5, Jul., Aug., 1968.*

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*Left to right: (standing) C. Ronald McGinnis, manager of provider relations; Peter Rodler, assistant manager for physician relations; Wallace Cannon, assistant manager for hospital relations; James Hudiburg, hospital relations representative; (seated)· Leslie Gross, physician relations representative; Miss Juana Negri, claims auditing clerk, provider relations; Mrs. Dorothea Noyes, chief clerk, physician relations; and Miss Grace Vesnaver, general clerk, provider relations.*

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# POINTS ABOUT JOINTS

During my first twelve years in practice, I was the only orthopedic surgeon in Delaware so that a good many problems had to be worked out at the ground level as far as treatment and even diagnosis were concerned. It seems worthwhile to attempt to put my experiences in writing to assist the newcomer (and maybe sometimes an older one) in orthopedics. It is useless to label each experience or each treatment. Sources are too varied for specific references. There will therefore be no bibliography; I do not feel that this is that kind of a treatise.

I have attempted to put down some of the highlights in such a way that they may be of benefit to someone. This presentation is, of course, somewhat didactic but it needs to be so and is given in such a manner as a preceptor might use in a small group — short, crisp and staccato where it seems to be needed.

As for the title; well it is a bit difficult to be short, crisp or staccato with the word orthopedics to insert or encompass.

*PART I — First of Four Parts*

Irvine M. Flinn, Jr., M.D.

When a patient comes to see his doctor, he expects to be cured, and he has faith in his physician. However, the benefits received often require much more than a lift under the heel or aspirin. The patient must be taken into your confidence and his condition explained to him. He will then be satisfied and will help himself get well. I have always felt that a close doctor-patient relationship is important. I recall vividly one time when Dr. George Bennett of Baltimore was talking about a boy who had had severe pain in his neck. He said that this boy had seen several orthopedic surgeons who said nothing could be done for him. He finally came to see Dr. Bennett. Dr. Bennett's remark to me was that all the other men had forgotten that the painful neck belonged to an individual. Dr. Bennett sent him to a psychiatrist and the boy recovered.

Time and time again, it was noted that industrial accident patients when seen by me were very bitter, suspicious and wary. They were the ones who had not responded to the usual means of treatment. They felt the world

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Dr. Flinn, presently retired, practiced Orthopaedic Surgery, July 1929 - July 1965, and was a Diplomate of the American Board of Orthopaedic Surgeons. He was Chief of Service at Delaware, Memorial and St. Francis Hospitals, and Consultant to Delaware State Hospital, the State Welfare Home at Smyrna, Delaware Curative Workshop, the Children's Bureau and all the downstate hospitals. Dr. Flinn served two years as President of the Medical Board of Delaware Hospital and supervised the State Board of Health's Crippled Children's Clinics.

was against them and that they were being "done out" of everything they had. With this type of patient if it were possible to make a friend of him, he would respond and realize that you actually were trying to do something for him and then he would at least improve.

With all this as background, I was somewhat surprised at a meeting in 1964 in Cincinnati when the Freibergs were demonstrating a series of cases with hand surgery for rheumatoid arthritis. They stated that the doctor-patient relationship had to be very close in such cases so that the patients could be encouraged when small gains were made. After the demonstration was over, it was surprising how many of the visiting orthopedic surgeons remarked about this doctor-patient relationship and thought that it might be a good idea. They had never seen it tried before. I am afraid this attitude is somewhat general in large clinics where there is so much hustle and bustle that there does not seem to be time for the fine essentials, and the patient soon becomes Case 10 of Group 4. It is true that if a patient has trouble with her toe or foot, it takes a long time to get her story. For that reason lots of doctors do not care to take the time to become that involved. Loss of attention to detail while streamlining practice actually cuts down on the amount of work the individual orthopedic surgeon sees. The assumption is: The condition may be there, but I cannot be bothered with it. Another attitude is that there is nothing new under the sun; this is definitely so in foot work, which we will consider later.

### Braces

It used to be that the orthopedic surgeon had a complete knowledge of braces. He knew which ones he wanted to use in specific conditions, and he ordered them from the brace man. If he told the braceman to make a brace with specific measurements, the chances were he would be discomfitted because the brace would not fit, but because he ordered it he had to pay for it. Therefore, I tell the braceman to make the type of brace I want, but he measures for it and makes it, and then if it is not right, it is his responsibility. Unfortunately, when a good bracemaker appears, he is soon so busy that he cannot take care of the work by himself. He is an individualist, or he would not have started making braces in the first place, and he is a good mechanic. It is soon apparent that he needs help and he hires someone to help him who is not as good as he is. After a while, the braces become inferior and won't do the work unless that one particular man makes them. Then the world is looking for another bracemaker. Only in a large shop where there are two or three good mechanics can bracemaking continue from one generation to the next.

### Physical Therapy

It is essential to have a fair knowledge of physical therapy. I am sure one reason why some of us today lack knowledge of physical therapy is because there is now practically no poliomyelitis. This was one avenue that led to the understanding of physical therapy. We had to know a lot more about muscles then than we do now because then we were treating almost individual muscles. There was not much rehabilitation in 1930, but as time wore on, there began to develop a pattern. There has always been a tendency to shorten the period of disability to get the patient back to work as soon as possible. It should be remembered that physical therapy at home frequently will do more good than physical therapy at a clinic. Anyone who has to have treatment on his arm or back would much rather do it at home than have to go somewhere to get it done. Some of the treatment which can be done at home will be outlined as we progress and will not be mentioned here.

In the section just finished, you will note various aspects of loss of or lack of treatment have been noted. These are all of relatively minor importance. Certainly, no surgery would be involved in any of them. But because the doctor is either too busy, does not care to handle minor problems, or doesn't know about them in the first place, there has to be someone who will take over. These smaller diagnostic problems mean a lot to the patient; the physiatrist steps in to take care of these conditions and to supervise physical therapy.

Hence, there is a feeling that there is a house divided. There is a large void unfilled by the orthopedic surgeon and criticism of his incompetence because of it. I should like to make a slight dissertation on physical therapy. It is my feeling that it is frequently overdone and is done frequently by people who are not sufficiently trained to do it correctly. I recall vividly one non-union of the humerus that was mauled regularly three times a week in an attempt to obtain shoulder motion. All the motion was in the mid-shaft of the humerus. An intramedullary nail was preventing motion in the shoulder. It is true that the surgeon himself should have found out about this, but no self-respecting physical therapist would have continued treatment if he knew what he was doing.

### Posture

Joel E. Goldethwaite's name will always be synonymous with posture. He and some of his Boston colleagues have practically written the entire literature and set up the criteria for good and bad posture. Essentially, good posture is the utilization of muscles and position of the skeletal frame to best obtain balance with a minimum of effort. It likewise holds the center of gravity in a balanced position so that any motion likely to disturb it is countered with an opposite motion to prevent its change in position. If we throw an arm forward, the opposite leg will very likely go backwards. As we walk along and come to a curb, we do not suddenly come up to the new height. Our first step will be one with the knee partially bent allowing for the increased height; our center of gravity is thus slowly elevated without any sudden change until the other foot touches the ground and the whole body has been elevated to the sidewalk level. All of this is accomplished without any jerky motion. Steindler and others have developed mathematical formulae for the force of propulsion at the ground causing us to move forward. I prefer to consider that we are moving our center of gravity about and move it forward by propulsion on the ground. When we stand still and shift our weight from one foot to the other, we shift our center of gravity but the ground itself is no factor.

### Gait

Let us consider gait. This four-letter word covers a multitude of conditions. We shall consider only gait in a normal individual whose legs are of equal length and who has essentially good posture. Practically any good athlete or dancer in good health will serve as an example. Some time ago, on my way to Madrid, I read a brochure in which it was stated that at five o'clock in the afternoon the girls in Madrid put on a hip display that is better than anywhere in the world. This is true. It is the most stately walk of any I have ever seen. The hip motion is at a minimum. Motion is up and down on the sides and the girl glides forward with practically no motion in her shoulders and head. This is also seen in the men, giving them an elongated stride. Analysis of this motion is extremely interesting. I saw one girl in a flamenco joint who was showing off in front of her partner. Her hips were going up and down sideways to such an extent that I am certain her spinous processes must have had the jitters, but the motion was essentially the same, though much exaggerated, as was used in walking.

On analysis, it seems to me this is what happens. There is a tilt of the pelvis laterally. As the full weight is borne on the leg, the gluteus muscles tighten on the weight-bearing side. Down goes the pelvis on this side and up goes the crest on the opposite side. On palpation this is definitely an abduction procedure on the weight-bearing side with a slight dip on this side and the elevation of the pelvis on the other side so that the other leg can follow through with a minimum of lifting and be ready for weight-bearing when the proper moment comes. It would be interesting to note what happens to the quadratus on the elevated side at this time. In this process, the actual time of contraction of the abducting muscles is minimal; just sufficient to let the head of the femur pass through. I have noted this gait anywhere and everywhere, and I believe that for actual fast walking, not strolling, it is the gait that most athletes use. It is used by both men and women. There are, however, some varieties.

Occasionally, there is a positive Trendelenburg. During this phase, there is a relaxation and a sharp slump on the weight-bearing side with consequent elevation of the other side. This in itself is awkward and I am certain cannot be used in the fast type of gait. There are all types of sidewise motions, some graceful and some not. I have watched many people and they certainly have a variegated gait. Some usually walk as I have described, yet at other times they walk with a slight sidewise motion. I imagine what really happens is that we all have a variegated gait and use what is best under the circumstances for what we are doing at that specific time. I believe most skaters have a Madrid gait. No work has been done with electromyelography or the fluoroscope, but it would be very interesting to follow through with these approaches.

### Specific Joints

Let us consider some of the conditions that arise as we might meet a patient in orthopedic practice. The head can be ruled out of our consideration. In the old days, the temperomandibular joint was considered a part of orthopedic surgery. I rather think it belongs in the hands of the maxillofacial surgeon and the dental specialist because of the associated problem of occlusion.

The *cervical region* is frequently a source of difficulty and diagnosis resolves into muscular and joint (arthritis) versus neurological conditions. It has always been my policy to attempt to provide an accurate diagnosis and assume, until proven otherwise, that the condition under examination in the cervical region is not a ruptured intervertebral disc. This is true of any part of the spine. Too often diagnosis of disc rupture is made without due consideration of other conditions. I do not feel that diagnosis is genuine until proven beyond a reasonable doubt. I am sure that this attitude if adopted would produce many less negative operations for discs.

*Congenital torticollis* is not so common as it used to be because of better obstetrics, but still sufficiently present to cause some worry. Its cause, still in dispute, makes little difference in treatment—massage by the fingers over the lump in the neck every time the child is picked up is essential, but exercise is important. This is done by the indirect method. We are all phototropic. Therefore, the child should be placed in position so that strong light is on the side of the lesion causing him to roll his head that way.

Operatively, in my hands it is best to sever the muscle at both ends. No cast is necessary. Remember to always make a longitudinal incision over the mastoid. The occipital nerve goes over it and it is very superficial.

*Cervical myositis.* The neck, of course, is subject to torsion, lateral, forward, and backward motion. There is frequently trapezius involvement with myositis and, of course, the end results of whiplash injury. I use this term advisedly, not because I think it is the correct one, but because it is so legally and medically entrenched at the present time that I don't believe it will ever be removed. At any rate, the "chronic whiplash" usually has tenderness in areas of the muscle layers of the trapezius. In some instances, I assume a section of the trapezius at its upper border might produce good results. Certainly, local injections at the site of pain in the trapezius help, and I rather suspect that an occasional neuroma forms in the muscle itself which continues the process still longer.

*Unilateral subluxation of the cervical vertebra.* This can occur between almost any two vertebrae. It frequently comes on during sleep when the child, or even an adult, suddenly awakens with a snap of the neck after which he has so much pain that he cannot stand it. The x-ray usually presents a beautiful picture of unilateral subluxation, but there are some cases which do not show any change in position of the bones. I believe what has happened here is that either subluxation did occur and then reverted, or else the muscles and ligaments had been pulled sufficiently at points of pain that they caused spasm and protection.

On examination the neck is held in a peculiar manner; rigid in one position for fear of pain because of muscle spasm. There are painful points — the apophyseal joints involved. There is an inability to move the head to the affected side, but freedom of motion to the opposite side.

Treatment is manipulation after the method of Watkins. Here is my modification of his treatment. The patient lies supine with his shoulders clear to the axillae over the end of the plinth. External rotation to the non-affected side is to be complete and stretched in that position. At the same time, abduction to the non-affected side is complete and stretched in that position. If the child is quite young, a certain amount of "vocal anesthesia" is essential because we must get complete relaxation. Continue with the rotary motion until the head is completely rotated to the unaffected side and is in complete opisthotonos. If at any point the patient complains of pain, retrace the movement of the head until the pain is relieved, and then begin again more slowly from there. Continue the arc of motion to the affected side with the head still completely rotated to the unaffected side until the neck is abducted completely to the affected side, but the head is still rotated to the opposite side. Just before the shoulder on the affected side is in the way, quickly rotate the head completely to the affected side and bring the patient and neck to a sitting position with head rotated to the affected side and abducted to the same side. Sometimes crepitus of the joints can be definitely felt at the start of the last motion. Apply a collar for 48 hours if the condition seems to be relieved. This can consist of felt and stockinette. If the condition is better but not quite well, repeat the manipulation. Each time it becomes easier. Of course, you may say, "Put the patient in the hospital in traction," but consider what that means in bed occupancy and expense for something that really does not require admission.

It is well to remember a few pitfalls. Always get an x-ray first. One time I did not and started to manipulate a man's neck because I thought he had a subluxation. He had so much pain that he could not stand it, so I then obtained an x-ray. He had an undisplaced fracture of the odontoid process! Hence, be careful.

*Scalenus anticus syndrome.* This condition was first discovered by Adson at the Mayo Clinic when he was attempting to remove a cervical rib by the anterior route. Because the patient went bad after just the scalenus anticus was cut, the operation was stopped. When she awoke, it was found that she had no more pain or difficulty. There are, of course, two types of scalenus anticus syndrome: acute and chronic. Occasionally, the acute form can be relieved by injection of the muscle with Novocaine or light traction. There can be a cervical rib present or not, but most of the time, there is not. In the chronic form, the patient has suffered a long time with pain in the arm and stiffness in the neck. Tenderness over the anterior scalenus is quite severe and the patient may be miserable from lack of sleep. Frequently the scalenus anticus syndrome is a secondary manifestation of some other difficulty. It is seen in acute shoulders and Colles' fractures, etc., and it can produce bothersome sensory changes. What happens is this. Because the shoulder or wrist or arm is held in an abnormal position, postural changes thus produced in the cervical region cause abnormal pressure on the brachial plexus by the artery which has been pressed on by the scalenus anticus. The scalenus anticus goes into spasm or enlarges and the vicious circle has started.

On examination, pulsation of the radial artery is often eliminated when the arm is abducted and externally rotated. This, however, is not always so and it is not pathognomonic. The nerve changes that are apparent are sometimes bizarre. Occasionally, there is difficulty in the ulnar area, but often there are sharp, stabbing pains in the index finger or in one of the other fingers which, of course, rules out a disc affair and locates the pressure on the nerves lower than in the vertebral column.

Most of these conditions, indeed most cervical rib conditions, can be taken care of quite readily with exercise plus gentle traction using head harness, a rope, a flat bed, the back of a chair away from the bed, and a brick for weight over the back of the chair. The patient lies flat on his back with his head at the edge of the bed. This gives just enough pull to relax muscles without overdoing it, without pulling the vertebrae apart and causing discomfort. If he can hold this position for twenty minutes twice a day, plus some good hot towels around his neck for another twenty minutes, the chances are his condition will clear. If not, then he needs to learn postural exercises which mostly entail decreasing the lordosis in the cervical spine. Sometimes a collar is necessary. However, there are some cases that will not get well. This means that they must be operated upon.

The operation for scalenus anticus myotomy is relatively simple. An incision is made just above the clavicle and just lateral to the border of the sternocleidomastoid muscle. Dissection is carried down in the empty space until the scalenus anticus is noted. On the right, the phrenic nerve crosses it. It must be retracted. On the left, no nerve is seen. On the right, there is no difficulty with bleeding provided you are careful not to cut the cervical plexus below. On the left, at the distal medial angle, there is an artery that is a branch of the transverse artery. If this is not clamped, a little trouble will be encountered in stopping the hemorrhage. The next step after myotomy on either side is to gently dissect out the subclavian artery. There are frequently bands lying across it in the same direction as the fibers of the anterior scalenus, which has already been severed, and these must be cut. The artery should be rolled down at least a quarter-of-an-inch before, I feel, the operation is complete. Above all, do not dissect the brachial plexus because this will produce more scarring and cause more difficulty later. Occasionally, there is a loss of pulse at the wrist following the procedure, but this causes no difficulty. On one occasion, with considerable trouble and trepidation, we had to ligate the innominate artery. There were no changes in circulation in the arm except loss of pulsation. Because of the type of operation performed, scar tissue is very likely to occur because there is a fairly large empty space where the muscle retracts. It is therefore essential that exercises be done promptly after operation and be continued for a period of a month. These exercises should be taught to the patient before operation so that he can carry on with them after the operation is over.

The *anterior scalenus syndrome* can produce various neurological findings. One especially is worth emphasizing. Besides tenderness in the anterior triangle of the neck, there may be pain along the preaxillary line clear down to the 7th or 8th rib and there is tenderness there also. This is from irritation of the long thoracic nerve, ie, the nerve of Bell, and is also part of the scalenus anticus syndrome. It is certainly worth considering from a diagnostic standpoint especially if it is on the left side. The pain may be due to this rather than to the heart. Relief is given with heat and exercises in most cases.

*Cervical arthritis* can best be treated by physical therapy plus traction. One good method is to place a head halter on the patient, sit him on a stool, and pull him up until his buttocks just clear the stool. Then slowly rotate the head to the right and then to the left. All motions are to be done gently. Oftentimes, this will relieve the patient considerably. That, plus physical therapy, and supportive treatment is usually ample in the early cases. Cervical traction plus hot soaks can be instituted at home. The best way to apply hot soaks is to dip a towel in boiling water, wring it out dry enough so that it won't drip, and drape it around the neck and shoulders. Place a dry towel over the wet one and let it stay there twenty minutes, gradually cooling off. This is all that is necessary. More treatment would likely do more harm than good.

### The Clavicle

There are two conditions of the clavicle which certainly bear mention. *Luxation of the sternoclavicular* joint is an extremely disabling condition and is quite painful. If this occurs so that the clavicle passes posteriorly, it will involve the trachea or big vessels. If anterior, it is close to the skin and is quite painful. Luxation of this joint is caused by a pull of the arms with a sudden jerk forward, or by crushing injuries. I recall one man who had bilateral luxation of the clavicles when he was caught between a truck and a wall.

Operative correction is about the only thing that will ever put the clavicles back in place. This is best done utilizing a piece of fascia. Drill a hole from the anterior surface of the clavicle through the middle of the joint surface and then through the sternum and up to the anterior surface of the sternum. Insert a piece of fascia lata, knotted at the end, through the anterior clavicular hole and then through the sternum. The remaining fascia, after it is threaded through and pulled snugly, can be laid back over the joint and sutured underneath the clavicle. In my hands this has given a very satisfactory joint.

*Acromioclavicular separation* is the other clavicular injury. This is also disabling and it is hard to take care of with any comfort to the patient. The usual method of treatment is to strap the arm tightly from the elbow over the shoulder after reduction has been accomplished. This is difficult to hold in place and frequently produces signs of pressure around the olecranon. The best method for taking care of this injury is to apply three broad strips of adhesive over the back and shoulder, tapering to a point just in front of the clavicle. A felt pad is placed over the clavicle and underneath the adhesive. A right-angled hanging case is put on the arm. A piece of elastic tubing is tied to it at the wrist and to the adhesive. The weight of the cast is sufficient to pull the clavicle down and the springy motion in the tubing holds it in position and acts as a balance so that there is no extra pressure exerted anywhere. It might be well to note that in reducing an acromioclavicular separation, the first move is to push the clavicle forward and then down. It slips in much better this way. In the hanging cast at the wrist, be sure to allow it to extend over the wrist on the ulnar side and just beyond the 5th carpometacarpal joint. Cut it off at the wrist on the radial side; this prevents the wrist from hanging down and gives free use of the hand and fingers.

*Part II will appear in next month's issue.*

## MAIMONIDES' TREATISE ON HYGIENE

. . . Emotions of the soul produce changes in the body which are great, evident and obvious. As testimony thereto, one sees a person of robust build, ringing voice and glowing face, when there reaches him suddenly news that greatly troubles him — at once his color becomes pale, the brightness of his face dims, his posture stoops, his voice becomes hoarse (or weak) and even if he attempts to raise his voice, he cannot. His strength diminishes and he often trembles from the great debility. His pulsebeat becomes weaker, his eyes sink, his eyelids become so heavy that they cannot move, his body surface cools and his appetite subsides. . .

. . . The reverse of this is seen in a person whose body is weak, whose color changes and voice is low as soon as something that greatly rejoices him occurs. His physical strength is increased, his voice rises, his face brightens, his movements become more rapid, his pulse strengthens. . .

. . . Therefore physicians have directed that one look into the emotions of the soul and that one make attempts to hold these in balance in conditions of health as well as disease. The physician should notice that every sick person is depressed (or anxious) and he should therefore remove the emotional passions that are causing the anxiety for in this way health is maintained. . .

. . . For some, misfortune is so hard to bear that they either die at once or after a short time according to what it is that disturbs them. Likewise when these people acquire something from the goods of this world, their joy is exaggerated.

. . . and their jubliation so strong that some die in the vehemence of their exultation. . . The more mental training one possesses, the less one is affected by both conditions, fortune as well as misfortune. . .

(From *Treatise on Hygiene* by Maimonides, composed for Sultan Al Afdal, son of Saladin, in the 12th century.)

# BILATERAL COMPLETE DUPLICATION OF RENAL PELVES AND URETERS

• **A case report of bilateral complete duplication of renal pelves and ureters with non-visualization of hydronephrotic upper segments on excretory pyelographic examination.**

Rafael A. Zaragoza, M.D.
Arthur F. Zimmerman, M.D.

The urogenital tract is the site of the highest incidence of anomalous development. Urogenital anomalies are found in 30 to 40 per cent of malformed individuals, often combined with other congenital defects.

Duplication of renal pelvis and/or ureter is a relatively common urogenital anomaly, being found in 342 of 51,800 autopsies reported by Campbell (an overall incidence of 1:152). Duplications commonly have associated anomalies; of the 342 cases of duplication, there were 129 other urologic malformations and 63 non-urologic anomalies.[1]

Duplication of the renal pelvis may be unilateral or bilateral; duplication of the ureter may also be unilateral or bilateral, incomplete or complete. If the ureters from the duplicated pelves unite to form a common ureter before entering the bladder, the duplication is termed incomplete; if each of the duplicated ureters enters the bladder separately and has its own ureteral orifice, the duplication is termed complete. Of the 342 cases previously mentioned, the duplication was complete in 101 but was bilaterally complete in only four.

Double ureter is found unilaterially six times as often as it is bilaterally and in one in five cases bilateral involvement is mixed, with complete duplication on one side and incomplete on the other.[2]

On examination of 4,774 urograms, Nordmark[3] observed a considerably higher incidence of duplication. He found 201 cases of double pelvis (155 unilateral, 46 bilateral) and 138 cases of double ureter (119 unilateral, 19 bilateral; of the unilateral variety, 59 showed complete duplication; of the bilateral variety, 11 showed complete duplication).[3] The discrepancy between these figures and Campbell's autopsy findings is understandable since the urograms were made on patients with urologic disease in whom anomalies of the upper urinary tract frequently play an important etiologic role.

On the basis of either the autopsy findings or the clinical findings, it can be concluded that although duplication of renal pelvis and/or ureter is a relatively frequent finding, bilateral complete duplication of renal pelves and ureters is rare.

### Etiology and Pathology

Two embryonic explanations for renal and ureteral duplication have been offered: 1) the development of two ureteral buds with fusion of nephrogenic anlagen (double kidney), or without fusion (supernumerary kidney); 2) fission and splitting of a single ureteral bud. Neither theory explains all cases. There are generally as many separate pelves as there are ureteral stalks, the pelves usually being situated one above the other, but rarely they are side by side or one pelvis is directly behind the other.

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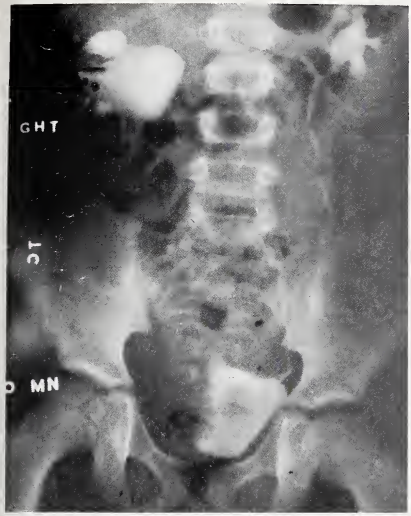

Figure 1 — Excretory urogram on 2/15/67 showing right hydronephrosis with a filling defect on right side of bladder apparently due to a dilated distal right ureter draining the upper segment.

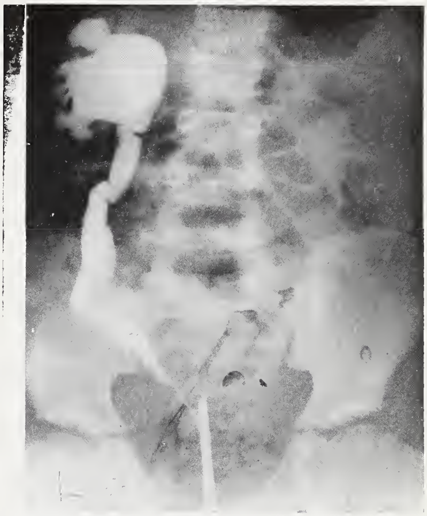

Figure 2 — Right retrograde uretero-pyelogram of the lower segment. Obstruction is at the region of the uretero-vesical junction at the site where the ureters cross.

With complete duplication (except when extravesical ureteral ectopy is present), both ureters pass downward side by side from the two renal pelves. The ureters usually cross once or twice; most commonly, just below the renal pelvis and just above the bladder. The ureter from the lower pelvis usually communicates with the higher or more cephalad and more laterally placed ureteral orifice. The orifices are usually situated one above the other, adjacent to the ridge of the trigone, but they may lie side by side or be separated from each other. Obstruction of one or both ureters may develop at the point of crossing or the ureter may otherwise be anomalous, congenital stricture being a frequent finding. In incomplete duplication the ureteral branches from the duplicated pelves join so that only one orifice is present.

**Symptoms**

In most cases, duplication is asymptomatic and accidentally discovered. Anomalous organs are generally more prone to disease than normal ones but duplication of the upper urinary tract is an anomaly that is particularly prone to complicating infection, obstruction, calculus, etc. The symptoms and clinical findings, therefore, are usually those of the complicating condition.

In some cases, the symptoms, notably abdominal pain, may simulate appendicitis. This is probably the most common diagnostic misadventure when the symptoms are caused by unrecognized urogenital tract disease. The case report presented in this paper is an example.

**Diagnosis**

The diagnosis of renal duplication is made by complete urologic examination in which urographic demonstration of the duplicated pelvis is made.

Excretory urograms demonstrate a rela-

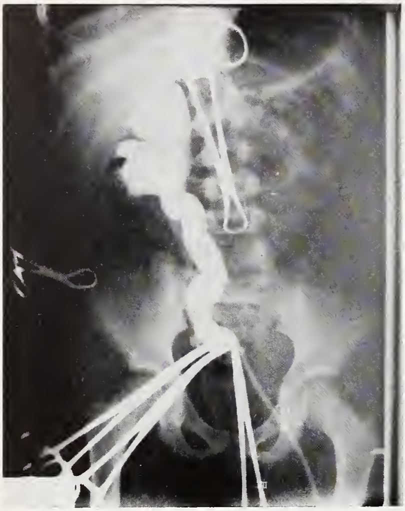

Figure 3 — Uretero-pyelogram of both upper and lower segments of duplicated renal pelves and ureters on the right side done at the time of exploration. The ureters cross just above the ureterovesical junction. The upper segment drains into the prostatic urethra.

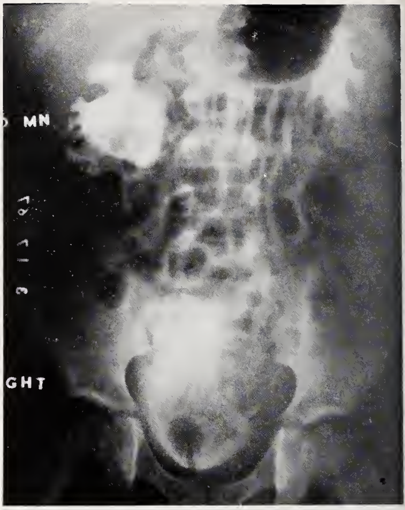

Figure 4 — Excretory urogram on 3/17/67 showing lateral deviation of the upper pole of the left kidney suggestive of a double collecting system on the left side. Also, a filling defect on the left side of the bladder apparently due to dilated distal ureter draining the upper segment (similar to the defect on the right side seen in Figure 1).

tively large number of cases of the anomaly in which it was totally unsuspected. With involvement of only half the kidney by obstruction of the corresponding ureter, hemipyonephrosis of infected hydronephrosis commonly develops.

The diagnosis of ureteral duplication is made by urography, at operation, or at autopsy. The majority of cases are identified at the time of complete urologic examination because of persistent pyuria. Diagnostic and therapeutic difficulties arise when stricture, stone, or another condition involves one of the duplicated ureters causing obstruction and non-visualization on excretory urogram.

Duplication may be suspected from the plain film in some cases because of elongation of the soft tissue outlines of the kidney. In a majority of cases, the lower pelvis is larger and of more mature contour than the smaller, somewhat rudimentary upper pelvis which resembles an elongated major calyx with only one or two abbreviated minor calyces branching from it. In such case, the lower pelvis with its calyces may appear adequate to serve the entire kidney. If a retrograde pyelogram were made which visualized only the lower pelvis, the duplication might be missed completely if suspicion were not aroused by the soft tissue outline of an unusually long kidney. For this reason, the possibility of duplication should always be considered. An excretory urogram should be performed to rule out the presence of an upper pelvis if an upper calyx appears less mature or seems to be missing, if a pelvis seems smaller than normal, or if it is in a low position in relation to the renal outline. However, duplication should not be ruled out if such abnormalities are not

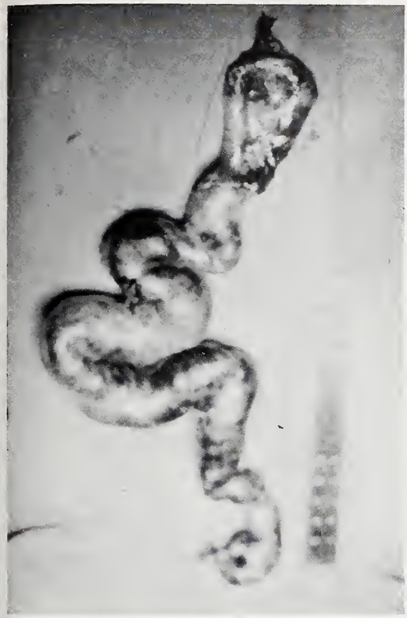

Figure 5 — Specimen: Left upper renal pelvis with corresponding dilated ureter.

noted since there are cases in which the pelves are equally sized or in which the upper pelvis is even larger than the lower.[4]

If the involved segment is non-visualized on excretory urogram, diagnosis is more difficult. Sometimes a drip infusion pyelogram will produce visualization of the involved segment which is not visualized on ordinary excretory urogram. Cystoscopy and retrograde pyelogram may establish the diagnosis if the orifice draining the non-visualized portion, usually the upper portion, is seen and can be catheterized.

### Treatment

Treatment of duplication is that of the surgical or other complicating disease. When only half of the kidney is involved, ureteroheminephrectomy is the usual procedure employed. The remaining renal segment is usually adequate to maintain life. Occasionally, the unobstructed renal segment becomes secondarily involved and nephrectomy may be necessary.

### Case Report

An eight-year-old, white boy was admitted to Kent General Hospital on February 9, 1967, initially to the surgical service with intermittent pain in the right lower quadrant which started the evening prior to admission. The pain had become persistent and was accompanied by loose bowel movements on the day of admission. He had a history of kidney infection four years before, but otherwise, no urinary symptoms.

Physical examination revealed a well-developed, well-nourished, conscious, coherent child in mild distress and appearing ill. The abdomen showed localized tenderness in the right lower quadrant which extended down

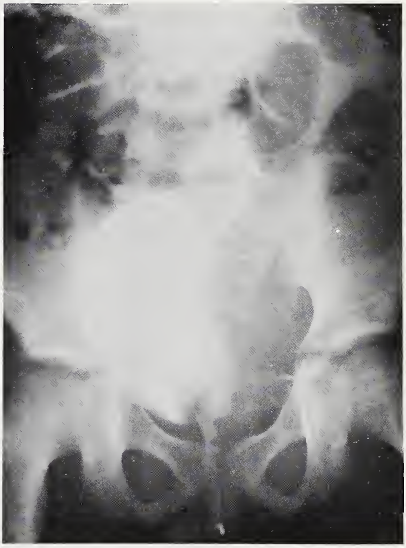

Figure 6 —Retrograde cystogram showing displacement of bladder to the right side due to pelvic hematoma.

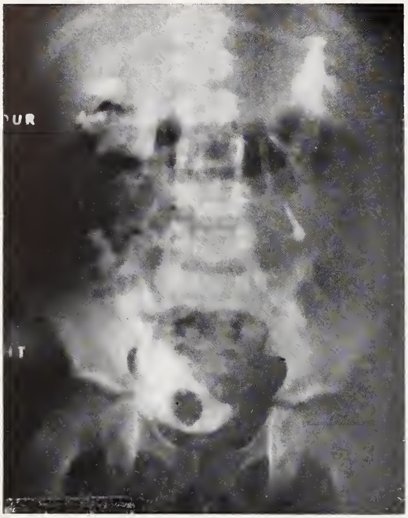

Figure 7— Excretory urogram again showing the filling defect on the left side of the bladder due to pelvic hematoma.

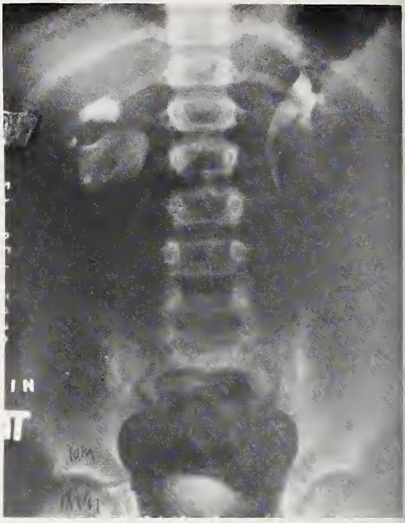

Figure 8 — Excretory urogram done six months post-operatively. There is good bilateral function with improvement of hydronephrosis on the right side. Left kidney appears normal.

toward the right suprapubic area with right rectus guarding. Peristalsis was hypoactive. He had direct rebound pain and light percussion tenderness. Testicles were undescended; the left was felt in the inguinal canal, the right could not be palpated. The urethral meatus was narrow. Rectal examination showed good tone with marked cul-de-sac tenderness referred to the suprapubic area.

On admission, urinalysis was negative for albumin and sugar; and had a trace of acetone, 35-50 WBCs, 10-15 RBCs, and some bacteria. The hemoglobin was 13.6 gm, the hematocrit was 42%; white blood count was 10,800, with 1 eosinophile, 1 basophile, 75 segmented cells, 9 lymphocytes, and 4 monocytes. Urine culture was reported no growth.

With the pre-operative diagnosis of appendicitis, an appendectomy was performed. The appendix was grossly normal, but a markedly dilated right ureter was noted.

Because of the dilated ureter, a urologic consultation was obtained and on February 15, 1967, an excretory urogram was performed which showed right hydronephrosis and hydroureter (Figure 1). The left kidney appeared "normal." Anterior urethral meatotomy, cystoscopy, and right retrograde pyelogram were performed on February 17, 1967. Ureteral orifices were normal in position on both sides. No ectopic or extra orifices were noted. The right retrograde pyelogram showed a large ureterohydronephrosis with the site of obstruction at the uretero-vesical junction (Figure 2).

On February 22, 1967, the right distal ureter was explored. It was found that the patient had a duplicated right renal pelvis and ureter with a markedly dilated upper segment of the kidney and corresponding ureter which apparently opened at the region of the prostatic urethra just below the bladder neck. The point of obstruction was at the site of crossing of the ureters above the uretero-vesical junction (Figure 3). The lower segment of the right kidney appeared normal except that the pelvis and its corresponding ureter were dilated though not as markedly as the upper segment. Transabdominal heminephroureterectomy was then performed. The right testicle was found to be intra-abdominal and atrophic and was removed. The patient tolerated the procedure well and initially did well.

About two weeks post-operatively he developed pain in the upper abdomen and left flank and subsequently spiked fever up to 102 F which did not respond to antibiotic treatment. He had marked tenderness in the left CVA region. Excretory urogram showed good function of both kidneys with improvement of hydronephrosis on the right. No evidence of obstruction was noted on the left but there was slight lateral deviation of the upper pole suggesting a double collecting system on the left side with a non-functioning upper segment (Figure 4).

Transabdominal exploration on March 22, 1967, revealed a double collecting system on the left side with dilated upper segment and marked dilatation of the corresponding ureter which was full of purulent urine. Left heminephroureterectomy of the hydronephrotic duplicated renal pelvis and its corresponding ureter which also opened at the region of the prostatic urethra just below the bladder neck (Figure 5) was then performed. The patient tolerated the procedure well and postoperatively he did fairly well.

His temperature came down until about two weeks postoperatively when he started having fever of 102 F again. He had pain in the suprapubic area and also in the left flank. A foley catheter was then inserted and he had residual urine of 210 cc. A cystogram was obtained which showed anterior displacement of the bladder to the right side suggestive of a pelvic mass, probably an abscess (Figure 6). Excretory urogram showed good bilateral function with no essential change from the previous urograms (Figure 7). There was no evidence of obstruction on either side. Cultures taken from the urine and also from the suprapubic drainage showed aerobacter; treatment with indicated antibiotics did not lower the fever. With the pre-operative diagnosis of perivesical abscess, the suprapubic area was explored under general anesthesia on April 17, 1967. A large infected pelvic hematoma in the left perivesical area was found. Culture of this material revealed aerobacter. The hematoma was evacuated and an iodoform packing was placed. The patient tolerated the procedure well and post-operatively his temperature returned to normal and he remained afebrile. The packing was gradually removed over a period of two weeks. He was discharged on May 11, 1967.

The patient has done well since discharge and has been asymptomatic. An excretory urogram done six months post-operatively showed good bilateral function with marked improvement of hydronephrosis on the right (Figure 8). Urine, clear; urine culture, sterile. He is to have left orchipexy in the near future.

## Summary

Although duplication of renal pelvis and/or ureter is a relatively frequent finding, bilateral complete duplication of renal pelves and ureters is rare.

In most cases, duplication of renal pelvis and ureter is asymptomatic and only accidentally discovered. In others, the symptoms and clinical findings are usually those of the complicating condition, such as infection, obstruction, calculus, etc. In some cases, the symptoms may simulate appendicitis, as in the case presented.

Diagnosis is made by complete urologic examination including excretory urogram, drip infusion pyelogram, cystoscopy, and retrograde pyelogram. Difficulties arise when neither excretory urogram nor cystoscopy produce visualization of the duplication. Diagnosis is sometimes established only on exploration.

Treatment is that of the surgical or other complicating disease. When only half the kidney is involved, ureteroheminephrectomy is the usual procedure employed.

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# Clinical Conferences

Brief case reports are selected from those presented at recent medical or mortality conferences. Physicians are invited to submit presentations of cases from their own hospital or office practice. Editorial assistance in preparing these reports can be provided if desired.

## AN INTERESTING CASE

Presentation: Ralph Bubeck, M.D., *Resident in Medicine, Wilmington Medical Center*

Diagnosis:

1. Pneumonia with subsequent empyema surgically drained.
2. Ruptured aortic aneurysm with surgical repair including insertion of a graft.
3. Pyelonephritis with azotemia.
4. Adverse reactions to multiple antibiotics.

This 56-year-old man was admitted with the chief complaint of cough productive of grey sputum, present for approximately five days prior to admission. He also complained of mild epigastric pain. His past medical history included a high alcohol intake which had ceased approximately five years before this illness. He was a moderate smoker. Nocturia twice nightly had been present for years. Physical examination on admission demonstrated temperature of 101.4 F, pulse rate of 104 per minute, respiratory rate of 28 per minute, and blood pressure of 100/70 mm Hg. The patient appeared dyspneic and questionably cyanotic. His oral hygiene was poor. There was epigastric tenderness with radiation of pain to the right upper quadrant. X-ray examination of his chest demonstrated a right lower lobe pneumonia. Laboratory data included: white count of 13,600 $mm^3$, BUN, 62 mg/100 ml. Urinalysis was abnormal with 4+ albuminuria and 5-10 WBC/HPF. Sputum culture grew normal flora. Urine culture grew Pseudomonas aeruginosa. His initial therapy with dicloxocillin had to be discontinued after six days because of rash. It was followed by erythromycin which in turn had to be discontinued after six days because of rash, nausea and vomiting. This in turn was followed by lincomycin which in turn was succeeded by kanomycin therapy. When repeat chest x-ray two weeks after admission demonstrated a right empyema, surgical drainage was performed. Several days after operation, he became acutely hypotensive and manifested a rapid heart rate. At this time his hemoglobin was in the neighborhood of 8 grams where it had remained since admission. He was transfused with 2 units of blood without change in his hemoglobin. Approximately five days after the pleural drainage, he complained of abdominal pain and was found to have an acutely swollen tender flank mass and diagnosis of ruptured aortic aneurysm was made. A six hour surgical procedure was performed, during which a ruptured arteriosclerotic abdominal aneurysm was resected and a Teflon graft inserted. His blood pressure remained low throughout the surgical procedure. Following surgery, his BUN increased from a preoperative value of 27 to 130 mgs/100 ml despite a continued urinary output of 500 to 1,000 cc per day. When his BUN reached 100 mg/100 ml, hemodyalysis was attempted but was ineffective because of technical difficulties with the arterial shunt. Intermittently throughout this time gentamycin was prescribed but was discontinued because of intermittent fever which was felt possibly to be on the basis of drug sensitivity. A urine culture grew out *Pseudomonas species* but hypotension occurred during colistin therapy and colistin was discontinued. Following this, the patient gradually improved. Leukocytosis was marked; bone marrow examination demonstrated mature lympocytosis. His white count decreased to 8,600. He was discharged essentially well (although still weak) 96 days after admission, with a sterile urine, adequate dorsalis pedus pulses, and no respiratory symptoms.

### Summary

This patient who ultimately made a good recovery after a three month hospitalization had a complicated hospital course. His otherwise severe illnesses were further worsened by various deleterious reactions to necessary antibiotic therapy, reactions which included rash, hypotension, fever, and gastrointestinal symptoms.

### Discussion (William J. Holloway, M.D.)

This patient developed empyema after satisfactory treatment for pneumonia with one of the new penicillins. We thought that we would be able to obtain L-forms from the empyema fluid; however, the L-form cultures proved to be negative as did the routine cultures of this material. It may be that our L-form culture techniques are not yet sophisticated enough to demonstrate these in empyema fluid; however, the antibiotic therapy subsequent to the penicillin was directed at the possibility of persistent infection due to an L-form of the original infecting bacteria.

Subsequently this patient had fever and leukocytosis while receiving various antibiotics. Unfortunately there is no easy test for determining when fever is a result of an antibiotic rather than being due to an infection itself. Discontinuing antibiotic therapy is the only measure I know of at the present time that can help one make the diagnosis of antibiotic or drug fever.

This patient received a course of therapy with a cephalosporin antibiotic during his immediate postoperative course. He subsequently was found to have a pseudomonas organism in the urine culture. It has been our impression in the past few years that pseudomonas superinfection or supercontamination appears to complicate therapy with the cephalothin antibiotics more so than with any of the other broad spectrum antibiotics; therefore, when a patient who is receiving a cephalosporin antibiotic develops fever and other evidence of infection, pseudomonas should be the first organism considered. The polymyxin antibiotics and gentamycin are the only satisfactory therapeutic agents to be considered in the treatment of serious pseudomonas infections.

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## AS WE WERE: PRESIDENTIAL POLITICS, 1912

At the present writing Governor Wilson was nominated for the Presidency. We may congratulate the country on the defeat of Champ Clark, a man who was so complacent and obliging as to permit his name to appear on the following testimonial:

### HOLDS UP A CONGRESSMAN

*At the end of the last compaign, writes Champ Clark, Missouri's brilliant Congressman, from overwork, nervous tension, loss of sleep and constant speaking, I had about utterly collapsed. It seemed that all the organs in my body were out of order, but three bottles of Electric Bitters made me all right. It's the best all-around medicine ever sold over a druggist's counter. Overworked, rundown men and weak, sickly women gain splendid health and vitality from Electric Bitters. Try them, only 50¢. Guaranteed by Handley, druggist.*

The National Bureau of Health, the Pure Food Law and similar measures for the public welfare would not have a ghost of a show with the advocate of "electric bitters." We presume that Mr. Clark will need a full case of the "bitters" to set him right. *(From the Delaware Medical Journal, July, 1912).*

# THE RESOLUTION OF MARITAL CONFLICT

• Marital conflict, an increasingly prevalent problem in our highly technological society is examined in the following article. Historical antecedents are briefly reviewed and some of the underlying dynamics of marital relationships are examined. Remedies are offered for coping with marital conflicts from a preventive standpoint and through the establishment of specialty clinics.

Leon E. Petty

In this rapidly changing and turbulent world of today, man is faced with a multitude of problems. He is beset with economic crisis, world crisis, emotional crisis and, last but not least, marital conflicts. Marital conflicts mirror the social climate of the times. They are a reflection of the general problems confronting mankind. Forces such as economic insecurity, social and political insecurity, changing values and morals, as well as the overall general instability of our cosmos have a profound effect on the behavior of people. Man has been described as a social creature and his greatest asset has been his adaptability and adjustability. Perhaps one of the most difficult areas of his adaptation and adjustment to life is sharing his existence with a relative stranger in marriage. Each individual is unique and his uniqueness becomes a part of the marriage relationship. Our behaviors, attitudes and beliefs influence not only the conditions in which we live but the behavior of others around us.

In the past, conflict couples often appeared to be held together by public opinion, religious affiliation, the expense of a divorce, the wife's economic helplessness or one of the partner's altruistic ideal of herioc fidelity. Today, these forces appear to have very little effect on the maintenance of the marriage contract.

Children formerly had a very binding effect on marriage. People stayed together because of a sense of responsibility for the children they produced. Today, children are not viewed as a sufficient or necessary reason for maintaining the contract.

We cannot begin to assess the effect of the mass communication media on the marriages of today. We can note in passing that the impact probably has a high probability of affecting the lives of many people.

Since time immemorial, people have known that talking over one's problems (including marital) with a friend is therapeutic. Therefore, it is reasonable to assume that unconventional marriage counseling has existed for as long as the institution of marriage.

Divorce, the dissolution of marriage, is, however, a relatively new phenomenon. The divorce rate is rapidly increasing, but basically in relation to the population growth. Statistically, the rate seems to be on a plateau commensurate with the marriage rate.

The so-called "new morality" may have a profound effect on the future of the institution of marriage. There has been a long slow process of changes regarding the concepts of sexuality. Perhaps one of the greatest challenges is the widespread independence of women. As women tend to compete more with men for choice positions, they tend to become less dependent on their spouses and less cooperative in other areas of functioning, and especially in marriage. Previously, when the women's role was essentially within the home,

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Mr. Petty is Chief Psychologist, Wilmington Mental Hygiene Clinic of the State of Delaware, Department of Mental Health.

she tended to be more cooperative with her mate. Her increasing independence presents and creates a serious challenge to the institution of marriage.

Marriage involves a close relationship and in most relationships involving a close interaction among people, the probability of friction is increased in proportion to the individuals' concept of themselves, their expectancies and their roles in that situation. The problem is obviously very complex for when two people enter into a marriage contract, they superimpose into this relationship their individual personalities and their subsequent interactions with each other. Initially, they linger in their bed of roses ignoring the thorns which are ever present. The more fortunate partners are somehow able to develop and maintain adequate techniques of communication; their roles become complementary rather than antagonistic. They are able to maintain what has been described as the fundamental motivating force of every human being, the necessity to maintain one's integrity.

Let us examine briefly the implications of the foregoing assumptions: for example, the complimentary roles of spouses. Many married couples recognize each one's share of the work to be performed in the total family unit. This allows most daily behavior to take place with little thought or effort because each one feels he knows what the other expects. When, however, the expectancy of either party deviates from the inferred roles, strains appear and if communication becomes blocked, conflict generally ensues.

Another method which most successful couples appear to have developed is one similar to the technique of psychodrama — that is, one of the partners takes the role of the other to get his point of view across. If he is successful in this behavior, the stress is ameliorated, at least for that moment. On the other hand, in problem marriages, there is a strong tendency for one of the partners to attempt to force the other partner into accepting a preconceived role. It is not uncommon for a domineering, rigid, and perfectionistic husband or wife verbally and sometimes physically to attempt to coerce the other into a role of submission. For example, the husband may degrade his wife as a woman, a mother, and, finally, as a human being. Many times he is not fully aware of his sadistic bent but is so egotistically involved with himself and his goals that he fails to realize that his wife has reached the breaking point in terms of her personal well being. Retaliation on her part which usually, depending upon her social and economic status, takes the form of defiance or passive resistance, tends to evoke more coercive techniques to force her husband to conform to the preconceived role. A viscious cycle and conflict ensues.

#### Manipulation Technique

Another common technique used by marital partners is manipulation of each other through promises, overt or covert, of future rewards or punishments. The aim of the manipulator is to evoke a response which will conform to his preconceived concept of what he intended the signal to mean. He will use a variety of techniques to accomplish his goals. Verbalizations take many forms in an attempt to influence a spouse. Praise is generally used during the early phases of marriage but when this technique starts to fail, there is no hesitation to blame or shame. I remember only too well one of my clients saying: "He told me to stop acting like a spoiled child," and another one saying her husband said, "Don't speak to me until you get rid of some of your verbal diarrhea." I'm sure that some private language takes an even more destructive, vulgar form.

Sick, that is, maladjusted marriages are constantly in need of repair. Many times these marriages got off to a bad start or were entered into under false premises. For example: one of the parties thought that marriage would answer some need, such as security, convenience, escape, or love (whatever that term happened to mean to him). Unfortunately the original need is not met and frustration mounts until conflict results.

Whenever conflict evolves, we generally look for the cause or attempt to discover a way of explaining why such an event occurred.

The greatest tendency of marriage partners in conflict is to project the blame or cause onto the partner. It is the rare individual who can admit his role in creating the tension. However, if we could through the magic of video-tape capture the entire marital interaction, we would likely discover that the crack in the wall of the marriage foundation occurred early in the marital relationship. There is also a very strong possibility that the uniqueness of the individual partners contributed heavily to the process of deterioration.

Let us consider, if you please, a husband caught between an impossible wife and his social duty. Several alternative resolutions are available. First, he may come to feel differently about his notion or sense of duty. If he decides it is ethically, socially, religiously, and practically appropriate to leave his wife then perhaps he can do so without difficulty or personal feelings of guilt. Or he may discover his wife in a new way so that instead of perceiving her as an ogress, he experiences her as an unhappy human being in need of help. Still again, a man may be able to change his expectation about life, to re-orient his standards and philosophy so that the problems and sufferings he endures are not incapacitating but rather the cycles expected as part of the processes of life.

Dynamically, the resolution of marital conflict follows the foregoing paradigm, the seeking of alternative solutions to reduce the areas and intensity of friction. Typically, the partners in conflict seek help by talking it over with a good friend, or seeking intervention by the minister, priest or lawyer, and perhaps finally seeking professional help. The important point here is the recognition that a problem exists and a solution is sought. This point is critical and crucial. One of the partners has to take the initiative and seek a resolution of the conflict. Theoretically, the probability of a resolution of the conflict would be increased if both partners recognized the need for modification of the behavorial patterns.

Generally, each partner will attempt to fix the blame, for when people become involved in mutual destructive behavior, they find each other annoying, irritable and usually resort to accusative behavior. Punishment and revenge fill their existence and increase their feelings of insecurity and inadequacy; they strike back or lash out in an aggressive manner. Their projective defense mechanisms become activated. Their mutual expectations and anticipations become warped; each expects and suspects that the other is deliberately attempting to hurt them. Their defenses become crystalized and with the ensuing rigidity, the crystallization of the conflict results. About the only thing that is certain is that each is sure the other one is wrong.

If both partners can be involved early in the marital counseling, the therapist is likely to discover that one of the partners needs individual attention as well as the dyadic interaction. That is, the interaction between the two marital partners.

### Role of the Marriage Clinic

In general, if the intensity of the conflict is low, the intervention of a friend, the minister, etc., may alleviate the acute stress and provide for continued or renewed harmony. As the intensity of the conflict increases, the need for greater skill such as that of a marriage counselor is required. The marriage counselor's basic focus is on the marriage relationship; the fundamental focus is the consideration of the husband and wife taken together. It is a focus on the interaction of couples in conflict. The marriage clinic with its interdisciplinary staff is probably best equipped to handle most such problems.

What are some of the areas underlying the conflict? The problem areas underlying marital conflicts are complex. Although sexual, economic and affectional problems top the list, it is usually the interrelationship of these and other factors rather than a single cause. Quite often we read of investigators focusing upon sexual problems as the most frequent cause. However, there are other findings which strongly contradict the emphasis placed on sex as the main causative factor. It has been found that a "good sex life does not assure a happy marriage, nor do sexual difficulties necessarily cause marital breakdown. Sexual symptoms occur with manifestly harmonious and frankly discordant relationships. There is no question, however, that unhappy marriages, by and large, are marked by greater incidence of sexual conflicts." Thus it appears rather definite that sex may be blamed for the marital conflict but invariably there are underlying symptoms which are crucial and critical to the maladjustment. It may well be that the refusal of the wife to cooperate sexually triggers or precipitates the conflict but the underlying cause is related to overall interaction rather than sex, per se.

It may be the result of antagonistic feelings, irritation, past experiences which are now evoked, feeling of being hurt or rejected, or any combination of causes which interact to produce the resultant conflict. It is the task of the skilled counselor to discover the salient problems or problem areas and to ameliorate the malfunction. This is not always an easy task since each of the individuals will bring his own attitude and beliefs to the counseling session and will more than likely be bent on placing the blame or at least projecting himself in the best possible light. Facts have a way of getting distorted under these conditions of stress. The attitude which an individual has towards himself and towards others may be very crucial in affecting a resolution of the conflict.

Divorce is the ultimate resolution of marital conflict. There is likely to be a complex hierarchy of causes for the divorce. External (social factors) as well as internal (psychological forces) play major determining roles. In many instances, divorce may be the only means of preventing the total destruction of one of the partners both on a mental as well as a physical basis. It may represent the only solution for the survival of that partner.

The effect on the children may be considerably less than if they remain in an abusive and perhaps brutally destructive home. It is possible that there will be a more tranquil situation with one parent than with two parents who can no longer tolerate each other within the confines of their limited life space. Divorce with its resultant problems of readjustment represents the ultimate in the resolution of marital conflicts but hopefully marital partners gave serious consideration to their mutual responsibility in arriving at this ultimate decision. It is extremely difficult for two people who are intensely involved on an emotional basis to be objective about such an important decision, especially when children are involved.

Let us examine some means of possibly reducing marital conflicts, a kind of preventive program. More emphasis should be placed on pre-marital counseling, perhaps during the formal educational process. We are constantly trying to prepare young people for their place in the world, but primarily do so in terms of finding a job. We may have overlooked one of the prime areas of function, the family. During the past decade, marriage among young people has been increasing at a rapid rate. More than likely, many of these young people have not considered the responsibility of their actions and yet this concept of responsibility may prove very critical to the institution of marriage. There should be some exposure of these young people to the concept of the family, of marriage, and the responsibility of assuming a marital role. This kind of emphasis might provide an understanding of some of the basic ideas, principles and concepts underlying the philosophy of the family as a unit and provide guidelines for what, where, and how to find help when problems arise during the adaptation and adjustment to this new phase of one's existence. Many young marriages may possibly be saved if they receive help as problems develop rather than waiting until a crisis level is reached.

To meet the increasing problems of marital conflicts more clinics devoted to marriage counseling should be established. In some areas of the United States, this kind of speciality clinic is providing the needed service. What is needed are more clinics devoted specifically to the areas of marriage counseling.

Marriage conflict can be resolved if we can provide sound foundations for the developing marriage partners of tomorrow and the kind of services needed to provide a speedy appraisal and amelioration of the conflict.

# Highlights

## ENDOCRINE ABLATION FOR MAMMARY CARCINOMA METASTASES

John Van Prohaska, M.D. — *University of Chicago. Surgical Conference, WMC, June, 1968*

The first endocrine ablation for the treatment of mammary carcinoma metastases was a bilateral adrenalectomy done on May 7, 1951, by Dr. Charles B. Huggins, at the University of Chicago. Since then, more than 800 such operations have been done, in association with simultaneous oophorectomy or subsequent to the performance of oophorectomy. Review of 600 patients with breast cancer metastases who have had bilateral adrenalectomy as compared with 500 similar cases not subjected to such a surgical procedure has thus been possible. The data demonstrate that the response to endocrine ablation is better the older the patients are, and the longer the interval is between primary tumor and the appearance of distant metastases. Oophorectomy at the time of radical mastectomy is indicated in women with breast carcinoma who are still menstruating. In postmenopausal women oophorectomy should be deferred until evidence of metastases appears and should be performed in association with, or should be followed by bilateral adrenalectomy, depending on the age of the patient. In the age group of 57 years and beyond, simultaneous bilateral oophorectomy and bilateral adrenalectomy is the procedure of choice. In the senile group aged 70 and beyond, bilateral adrenalectomy alone is adequate with radiation of the ovaries. In the group under the age of 57, oophorectomy is performed first and, if regression of metastases takes place, sequential bilateral adrenalectomy is done at the time of first appearance of recurrence.

The only absolute contra-indication to bilateral adrenalectomy is the presence of brain metastases. Regression of metastases following endocrine ablation is best in skeletal, cutaneous and pleural areas; poorest prognosis for improvement occurs in metastases to the brain and liver. The importance of the best available treatment for carcinoma of the breast can be appreciated with the realization that 60,000 new cases are diagnosed each year. Approximately 60% of these women will develop metastases to the regional lymph glands or distant organs. A review of the data indicates that patients on whom endocrine ablation was performed survived longer than patients on whom this procedure was not done. Statistically, the endocrine ablated group had a five-year survival 5 times greater than the unoperated group. At the end of 10 years almost all patients with distant metastases are dead whether they had endocrine ablation or not. The longest survivor of the procedure at present has been free of the disease for 11 years and is alive and well today.

The surgical approach to the adrenal gland may be through the lumbar or retroperitoneal areas, or transabdominally. Obesity is a contraindication to transabdominal approach. Preoperative preparation includes 100 mg of hydrocortisone intramuscularly the night before surgery with 100 to 200 mg I.V., during surgery. Postoperatively, the dose is gradually decreased to 75 mg orally per day and finally decreased to 25 mg twice daily, which then remains as the maintenance dose for life.

There is still some controversy regarding the role of prophylactic oophorectomy in younger women. The argument against doing it at the same time as radical mastectomy is that the status of the axillary lymph nodes is not fully known until all of them have been examined by the pathologist. Dr. Van Prohaska prefers to do the oophorectomy in young women in one to three weeks after the radical mastectomy in order to explain the reasons for oophorectomy to the patient and her family. Prophylactic oophorectomy prevents pregnancy which has an accelerating effect on the growth of mammary carcinoma. Furthermore, oophorectomy restrains the growth of mammary cancer cells and thus prevents or delays metastases in hormonal dependent tumors. It is estimated that the ovarian hormonal secretion during pregnancy is 700 times that of normal level.

Abstracted by Shahed Hasan, M.D., Medical Resident, W. M. C.

## ADULT VASOMOTOR RHINITIS

CHARLES M. BANCROFT, M.D. *Wilmington, Delaware—Allergy Seminar, WMC, May, 1968*

No entirely satisfactory form of therapy exists for vasomotor rhinitis. Specific extrinsic allergy is a less common cause of vasomotor rhinitis than is intrinsic allergy. In a large proportion of patients with vasomotor rhinitis, the results of skin-tests are all negative, and no specific allergy can be discovered. Recent articles emphasize endocrine dysfunction, sympathetic-para-sympathetic nervous system imbalance, and stress-tension (emotional; physical) factors as frequent causes of vasomotor rhinitis.

The diagnosis of vasomotor rhinitis may frequently be made from the history. The typical story is episodes of one or all of the following symptoms: attacks of nasal congestion; paroxysms of sneezing; watery or mucoid nasal discharge. It is very common for a patient to have no idea what brings on such symptoms.

There is frequently observed an associated triad of symptoms: asthma; nasal polyposis and an inability to tolerate aspirin. Skin-tests for sensitivity to extrinsic allergens in vasomotor rhinitis can be considered fairly reliable for the inhalants, but in our experience skin-tests for foods are not reliable.

The antihistamine drugs offer little or no relief. It appears to be an accepted theory that there is a strong stress-tension element in the etiology of a large number of cases of vasomotor rhinitis. Nervous tension of various types plays a part in aggravating the symptoms.

It is often possible in most of these patients to correlate temporarily the occurrence of long standing nasal symptoms with adverse life situations giving rise to conflicts with anxiety, resentment, humiliation and frustration.

It is recognized that colds, nasal infections and allergic reactions commonly occur with nasal obstruction and it is not implied that all such disturbances are related to situational stress.

## ERRATUM

In the September *In Brief* column, John M. Levinson, M.D., was erroneously named as the one Volunteer Physician from Delaware who had served on a 60-day service tour to Viet Nam.

*Correction:* The one physician from Delaware who has ever served a *full sixty-day service tour* under the volunteer physicians program for Viet Nam is William Wright, M.D., of the medical department of the DuPont Company, his tour having been done early this year.

Dr. Levinson first served a one-month volunteer tour of medical duty in South Viet Nam in November, 1963. He has subsequently been back almost yearly for a total of five tours.

In November, 1964, Charles R. Green, M.D., Allen Smith, M.D., Edgar R. Miller, Jr., M.D., and David E. Saunders, M.D., joined him in this effort.

# REPORT OF THE AMA BOARD OF TRUSTEES

*SUBJECT: AMA POSTURE ON PUBLIC COMMENT .*

Presented by:
Wesley W. Hall, M.D., *Chairman*

Referred to: Reference Committee F
(William B. Rawls, M.D., *Chairman*)

The Board is cognizant of the great increase in attention being given in the press and broadcast media to medicine and health care. Our profession is now the focus of one of America's greatest interests. It will constantly be in the spotlight, ending the professional reticence and privacy in which medicine functioned most of the time in the past.

Even though this interest is a tribute to the importance of medicine and the public's desire for its benefits, it brings with it the problems facing any person or organization with a key public position: much of the coverage is critical or displays a lack of understanding.

The Board of Trustees has consulted with AMA staff and public relations counsel on this increasingly important situation. The conclusions that have resulted from this intensive and thoughtful consideration are submitted now:

1. When statements about medicine are misguided or unfair, corrective statements will be issued promptly when the facts are available and orderly response is possible.

2. We must recognize that the prominence and complexity of medicine in the United States today result in many limitations. Medicine is a constant subject of news and comment, much of which cannot be subject to a later response. Often our replies cannot be carried by the broadcast medium or publication, or at best will be much less prominent than the original coverage. Quite often a responsible statement cannot be issued until the facts have been obtained, and these may be scattered about the country or involve a local situation or require a great deal of time.

3. The frequency and complexity of these matters have increasingly diverted the officers and staff of AMA to reacting to what others do and say. This decreases the ability to work on constructive, ongoing activities that are vital to our future.

4. Staff is developing in written form the best possible anticipatory statements regarding all foreseeable circumstances. By having such matters thought out and documented when a need arises, we will be able to reduce the instances of surprise, decrease the time required for response, and assure consistency in AMA statements on these matters.

5. We will concentrate on building a positive posture by getting understanding for medicine's functions and its positions on various considerations; and by educating the press, broadcasters and opinion leaders. This will help forestall much misguided criticism and build a favorable climate that will inoculate against susceptibility to unfair criticism.

6. All state and county medical societies are urged to follow these same procedures.

You will see many instances in which AMA responds to public comment, many in which we have acted but our effectiveness will be in correcting the source and may not be visible immediately, and instances when judgment indicates a response should not be made. In each case the best judgment and skills will have been applied to the complexities of the situation.

# Letters to the Editor

To the Editor:

The University of Delaware this fall has an entering class of just over 2000. Going over the first 1500 forms returned to the University Health Service, we came up with these figures:

- 36 were born outside of the USA
- 88 have lost a parent
- 52 have lost a sibling
- 118 are only children
- 100 have 5 siblings or more
- 95 have had infectious mononucleosis
- 175 report an unfavorable drug reaction
- 73 have frequent or severe headaches
- 682 have had a T&A
- 279 have had surgery other than tonsillectomy, ranging from appendectomies and hernias to intracranial and spinal neurosurgery.

We worry about the student who finds it difficult to achieve independence from parental apron strings. Perhaps a clue is the signature at the bottom of the history form. 69 parents signed the sheet. Probably a small number are signed by the parent with the student's name, but we would not know this until we see the undergraduate's writing.

We thought this collegiate information would be of interest to Delaware physicians.

Gordon Keppel, M.D.
*Director*, Student Health

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To the Editor:

In the August 1st issue of *Hospitals*, Vol. 42, Part 1, page 47, an article appears titled "The Physician's Place in Health Care Administration," by Edwin L. Crosby, M.D.

This article states the present day case of the doctor and the hospital so well that it seemed to be most desirable for distribution, not only to all hospital administrators, but to all physicians. I bring it to your attention in the hope that you may see fit to ask the permission of the American Hospital Association to reprint this piece in total in an early issue of the Delaware Medical Journal.

Publication of this article would seem to me to fit in with the stimulating policy that the magazine has adopted under your direction.

Richard R. Griffith, *Executive Director*
*Association of Delaware Hospitals, Inc.*

Editor's Note:

We thank Mr. Griffith for his suggestion and his kudos. We are presently reviewing the article for presentation to Journal readers.

* * *

To the Editor:

From our studies of New Castle County's government, the League of Women Voters of Greater Wilmington has arrived at some conclusions regarding the constitutionally established offices of New Castle County. These are often referred to as the "line" offices, and include the coroner.

It is our position that policy makers, those who perform legislative and/or executive responsibilities, should be elected; persons who actually carry out policy should be appointed. The "line" offices fall into the administrative category and, therefore, should be appointed rather than elected jobs.

In order to make a change in the process of filling these positions, a change in the Delaware constitution would be necessary since the election of these officials is provided for in the state constitution. The League has urged that all provisions relating to these offices be eliminated from the constitution.

There is no justifiable reason for these "line" officials to be independently elected authorities. It is inconsistent with the county reorganization which placed central executive authority in the hands of a single elected official. It would seem more reasonable for the line officials to be responsible to some

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# Delaware Academy of General Practice

## 1968-1969 RADIO SEMINARS IN MEDICINE

The Delaware Academy of General Practice is the sponsoring agency for this year's Pennsylvania Hospital two-way Radio Seminars. The series will be held each Tuesday at noon, beginning October 15 and running through April, 1969. This program is available statewide with the two-way hookup being available at Kent General in Dover, Beebe Hospital in Lewes, and Milford Memorial in Milford. In Wilmington, the Trustees Room on the first floor of the Delaware Division has been set aside for this purpose.

Under the program direction of Guy Lacy Schless, M.D., the 24 programs will be broadcast over station WUHY. Application for 24 American Academy of General Practice credits has been made.

### PROGRAM

Oct. 15 & 17, *Oral Hypoglycemic Agents*, Charles T. Lee, Jr., M.D., Senior Attending Physican & Director of Diabetic Clinic, Chestnut Hill Hospital, Philadelphia.

Oct. 22 & 24, *Organic and Innocent Cardiac Murmurs*, Bernard Segal, M.D., Clinical Associate Professor of Medicine, Hahnemann Medical College, Philadelphia.

Oct. 29 & 31, *Sarcoidosis*, Harold L. Israel, M.D., Clinical Professor of Medicine, Jefferson Medical College; Attending Physician, Philadelphia General Hospital.

Nov. 5 & 7, *Diagnosis of Carotid & Basilar Artery Insufficiency*, Frank Elliott, M.D., Director, Department of Neurology, Pennsylvania Hospital; Professor of Neurology, University of Pennsylvania School of Medicine.

Nov. 12 & 14, *Respiratory Function Tests*, Richard Cathcart, M.D., Associate Professor of Medicine, Jefferson Medical College, Philadelphia.

Nov. 19 & 21, *Pancreatitis*, James Cerda, M.D., Chief, Gastroenterology Service, University of Pennsylvania Division, Veterans Administration Hospital, Philadelphia; Associate in Medicine, University of Pennsylvania School of Medicine.

Nov. 26 & 28, *Insulin Selection in Diabetes*, Guy Lacy Schless, M.D., Associate Physician, Pennsylvania Hospital; Asst. Professor of Clinical Medicine, University of Pennsylvania School of Medicine; Consultant in Medicine, U.S. Fifth Naval District; Visiting Research Fellow in Metabolism, Guy's Hospital, University of London, England.

Dec. 3 & 5, *The Significance of Hypoglycemia*, Nicholas Padis, M.D., Senior Attending Physician, Department of Medicine & Director, Health, Examination and Diagnostic Service, Lankenau Hospital, Philadelphia; Associate in Medicine (Emeritus), Jefferson Medical College.

Dec. 10 & 12, *Today's Treatment of Chronic Renal Failure*, Lee Henderson, M.D., Asst. Professor of Medicine, University of Pennsylvania School of Medicine; Director, Dialysis Unit, and Co-Director, Transplantation Unit, Hospital of the University of Pennsylvania.

Dec. 17 & 19, *Tuberculosis, Histoplasmosis & Related Pathogens*, Robert Mayock, M.D., Associate Professor of Clinical Medicine, University of Pennsylvania School of Medicine; Chief of the Pulmonary Section, Hospital of the University of Pennsylvania and Philadelphia General Hospital.

Jan. 7 & 9, 1969, *Selective Management of Hypertension*, Robert J. Gill, M.D., Associate Physician, Pennsylvania Hospital and Asst. Professor of Clinical Medicine, U. of Penn. School of Medicine.

Jan. 14 & 16, *Diagnostic Possibilities by X-ray*, William Tuddenham, M.D., Director, Department of Radiology, Pennsylvania Hospital and Professor of Radiology, U. of Penn. School of Medicine.

Jan. 21 & 23, *Guides to Treatment of Anemias*, Roger Daniels, M.D., Assistant Physician, Pennsylvania Hospital and Presbyterian Hospital; Associate in Medicine, University of Pennsylvania School of Medicine.

Jan. 28 & 30, *Control of Symptoms in Allergy*, Leonard Parkhurst, M.D., Consulting Physician in Medicine and Allergy, Pennsylvania Hospital and Consultant in Allergy, Delaware County Memorial Hospital.

Feb. 4 & 6, *Selection of Antibiotics*, Robert Wise, M.D., Magee Professor of Medicine and Head of the Department of Medicine, Jefferson Medical College, Philadelphia.

Feb. 11 & 13, *The Forgotten Liver*, Dhodanand Kowlessar, M.D., Professor of Medicine, Director, Division of Gastroenterology and Director of the Clinical Research Center, Jefferson Medical College, Philadelphia.

Feb. 18 & 20, *Upper Gastrointestinal Ulcerative Disease*, Edward Raffensberger, M.D., Associate Professor of Medicine, University of Pennsylvania School of Medicine, and Gastroenterologist to the Hospital of the University of Penn.

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# "SLEEP IS SWEET TO THE LABORING MAN"*

## *OR — WE BOUGHT ELECTRIC BEDS*

Harriet Durham

One of the more obvious reasons for an M.D.'s wife to accompany her spouse to a medical convention is to collect free samples. These objects often resemble the collector: short, stout ladies are laden with bulging bags of large prizes, the ectomorph type leans toward slender items such as back scratchers. The weakness for collecting in our family lies with the M.D. himself and his special weakness is pamphlets, brochures, timetables and advertisements. This collection of paper usually fills one suitcase (brought along for that purpose) and keeps him busy for weeks, or until the advent of the next convention.

This strange hobby has caused no unusual difficulties. It once led to renting a Carribean house with no doors so that the chickens and pigs joined us for meals. Another time it led to chartering a boat, sans radio, and being lost at sea amidst a school of sharks. Once we landed at the top of the Andes (only 20,000 feet) which resulted in a severe case of the bends on descent. These experiences were fun, fun, fun! But a pamphlet from a meeting last fall extolled the beauties and comfort of electric beds; it was then that our troubles began.

After due consideration of the fact that our marriage had survived twenty years in a king-sized bed, the clinching argument was the reduced price if purchased through the convention pamphlet. At this point, we should have kept in mind that a bargain is a fool's paradise.

The twin electric beds were promptly ordered through a reputable, local department store. Delivery was delayed only three weeks, unimportant in itself, but I was anxiously waiting to see the "New Me" the ad had promised that luxury sleeping would make. Due to union control of our innermost lives, the delivery men were not allowed to assemble the parts and pieces, so the first night we slept five inches from the floor giving me the feeling I had become a Geisha without the compensating training. In the morning, I called the dear salesman and in a very carefully controlled voice asked what could be done. These conversations continued for two weeks. The problem was finally resolved by the appearance of the store's perfume buyer who happened to be an apt mechanic.

Now I was happy! A good night's sleep would sooth my irritation. But, woe! As I climbed into bed, all the sheets disconnected from their hospital-type corners. In the morning, through bloodshot eyes, I discovered with the help of a slide rule that these beds were narrower and six inches longer than most other beds. No one had thought to mention this and the ad wasn't about to admit it. Back to the department store! Eighty-five dollars later, I had sufficient sheets in extra long lengths. In a fit of preparation for the coming night, with my trusty pinking shears I cut in half all the king size blankets from our former bed. (I hesitate to add that an additional expense was involved. I could not cut an electric blanket in half so one of our children was the happy recipient of our king size model. This, of course, necessitated my purchasing *two* new ones.)

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*John Bunyan

Mrs. Durham, an orthoptic technician, is the wife of Davis G. Durham, M.D., opthalmologist and traveler. Together they have served on several medical missions including some on the hospital ship, *Hope*.

That evening, I happily settled into bed for several hours of reading. It was delightful: knees up; head up; push the button for adjustments — heavenly!

Now in our part of the country, we seldom have a summer storm in January. Unfortunately, the Man Above didn't know about our lovely new beds and chose this night to do things differently. There was a thrilling and exciting electric storm. Of course our lines were hit by lightning; and of course, all the power went off; and of course, I spent the night in an upright position (knees, also). In the morning, I made application to the local sanatorium to enter for a long rest and treatment of a nervous disorder. I was politely informed they had a waiting list of three months and would I mind? I would.

When blue, some ladies buy a new hat to boost their spirits. My approach this day was to improve the appearance of the new torture machines if I could get no comfort from them. You may have guessed by now that new bedspreads would be necessary. Back to the department store I went, reminding my weary brain that the spreads must be ordered in a special size. I got the spreads — two and a half months later.

The electric lines were promptly fixed but we were left with some decisions to be made as my temper and our marriage were becoming ragged. There were several choices. Sell the beds to some unsuspecting enemy. Join the crowd at Reno. Sue somebody! Thus far, all decisions have reached an impasse. But of one thing I am sure: every brochure, pamphlet or ad that appears after the next convention will be used for kindling.

Last night, in the wee small hours, there came to me from the other bed, a wee small voice, saying, "Shall we send them back?"

## LETTERS TO THE EDITOR

*Continued from Page 327*

executive authority, either county or state. This would increase the efficiency of our county where these offices are concerned and much overlapping is found. The present controversy over the the coroner and medical examiner is an example of this.

There are, also, practical limitations to the number of offices which the electorate can intelligently act upon. It would, therefore, seem logical to elect only policy makers.

We in the League appreciate your request for our position on this matter and are pleased to have this opportunity to express our views.

Paula Lehrer, *President*
*League of Women Voters of Greater Wilmington*

Mary Lew Bergman, *Chairman*
*Modern Local Government Committee*

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Editor's Note:

Because of the League of Women Voters' continued study of New Castle County government, we invited their opinion on the "coroner issues."

## 1968-1969 RADIO SEMINARS IN MEDICINE

*Continued from Page 328*

Feb. 25 & 27, *Non-Bacterial Pneumonias,* Hobart Reimann, M.D., Professor of Medicine, Hahnemann Medical College & Hospital, Philadelphia.

March 4 & 6, *Significance of Venereal Symptomatology,* Paul Gross, M.D., Chief, Section of Dermatology, Pennsylvania Hospital and Associate in Dermatology, University of Pennsylvania School of Medicine.

March 11 & 13, *Practical Pediatrics,* Robert A. Schless, M.D.; Consultant in Pediatrics to the Albert Einstein Medical Center, Philadelphia.

March 18 & 20, *Meeting the Cardiac Emergency,* Norman Makous, M.D., Associate Physician & Associate Cardiologist, Pennsylvania Hospital and Associate in Medicine, University of Pennsylvania School of Medicine.

March 25 & 27, *Fits, Faints and Funny Turns,* Richard Masland, M.D., Associate Professor of Neurology and Physiology, University of Pennsylvania School of Medicine.

April 1 & 3, *Genetic Diseases,* William Mellman, M.D., Associate Professor of Pediatrics and Medical Genetics, University of Pennsylvania School of Medicine.

April 8 & 10, *Thyroid Problems,* George Ross Fisher, M.D., Asst. Professor of Clinical Medicine, Jefferson Medical College, Philadelphia.

# Editorials

## STRENGTHENING VOLUNTARY HEALTH PROGRAMS

The writer recently had the opportunity to chair a Special Committee on National Voluntary Health Agency Structure. "United Way" refers to the activities of United Funds and Community Councils in 2,000 communities. "Voluntary Health Agencies" refers to contributor-supported health agencies whose programs are related to specific diseases and health problems with emphasis on public education and research.

The Committee's report contained the following introductory statement: "Voluntary effort historically has played a significant role in improving the health of the nation. It has become increasingly evident, however, that voluntary agencies need to undertake major revisions of programs and structure if they are to continue their important role. Increasing federal government involvement in medical research, for example, emphasizes the need for an appraisal of (1) what area of research is appropriately the responsibility of voluntary efforts and (2) how the voluntary agencies can effectively do the things that the government cannot do."

There is increasing evidence of the need for community-wide comprehensive approaches to each community's health needs. Involved in this important matter are the multiple aspects of chronic disease; problems of aging, heart disease, cancer, mental health, alcoholism, narcotic addiction, degenerative diseases, accident prevention, genetics and preventive medicine. Medicine must join hands with social sciences, utilizing the potential contributions of the sociologist, the anthropologist, the psychologist, the educator, and the environmental health scientist.

Voluntary health agencies, while re-examining their priorities and emphases, should continue to interest and utilize the energies of volunteers and professionals who are particularly concerned with specific health matters. At the same time, an eye must be kept on efficient administration, program effectiveness, and long range goals. Duplication of effort, over-specialization, and excessive fund raising costs need scrutiny and correction if voluntarism in the health field is to be preserved and strengthened.

*L. C. M.*

## AS WE WERE:

### Editorial, Delaware Medical Journal, 1910

The prevailing use of paper money in the United States was brought about mainly by the business men of the country for reasons of utility in its handling before the germ theory of disease was widely known.

Were we to stop to think of the amount of danger to the handlers of this money in the dissemination of disease, we would demand a more general use of coins, which on account of their structure is less liable to harbor contagion or to scatter it.

In many centers there is continually occurring a replacing of the old and dirty notes by new and clean ones, through the agency of the banks during exchange, yet it is a fact, which we in this country continually disregard, that the notes in circulation in the United States can compare only in a very inferior way hygenically with those of other progressive countries.

It is seldom that one sees a soiled or dirty note in circulation in territory of our European neighbors, for the notes almost without exception are printed on clean white paper which shows the smallest amount of dirt. The contamination warrants quick withdrawal for replacement by new ones.

A change in color for our paper currency from the present deceptive green to a shade more likely to show the filth clinging to the note, would no doubt be gladly welcomed by the saner thinking people as well as the germophobics.

*W. M.*

*Editor's Note:* Can any Journal reader identify "W. M."? His name does not appear on the masthead of the Journal, kindly provided by Dr. Ward Briggs, from which this was copied.

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REFERENCES

1. Voluntary Health Programs — The Case for Change, January 1967, Bulletin, United Community Funds and Councils of America, 345 East 46 Street, New York, N. Y. 10017

# President's Page

## "TELL IT LIKE IT IS"

The physician is personally responsible for providing the best available health services for his patients. To do this in an effective manner he must cooperate with the helpful and sometimes restrictive regulations imposed by "third party" insurance carriers, "fourth party" hospital administrators, and "fifth party" government agencies who now have vast funds available for distribution. It is little wonder that the doctor who tries to "tell it like it is" sometimes feels a disparity between his opinions and those multiple "parties" with whom he must cooperate. In these times it has become increasingly important that the physician constantly maintain an objective view of what is best for his patients.

When it was proposed that three general hospitals be amalgamated into a single Wilmington Medical Center, a strong argument for this action was the possible elimination of costly duplications of equipment and services. Later it was said that the improvements in medical education and not cost was the primary consideration. When it was asked why medical education was to take precedence over the welfare of the patient it was said that improvement in medical education would ultimately reflect in better patient care. I am hoping this can be realized.

Edwin L. Crosby, M.D., Executive Vice-President and Director of the American Hospital Association, has drawn attention to the vast current health expenditures of our federal government which are estimated to be 6 per cent of "the gross national product." It is forecast that these expenditures will increase to 9 per cent of all we produce in the next decade, or about $75 billion. It is essential for the wise use of these vast sums that there be close cooperation between doctors who provide medical services and administrators of hospitals who make medical facilities available. Doctor Crosby says the patients cannot be expected to differentiate between health care facilities and medical services and the physician must bear responsibility for proper use of both. He has pointed out that meaningful participation by physicians in hospital affairs is necessary if the best interests of patients are to be served. Planning for hospital facilities without coordinated planning for physician's services would be poor planning. The importance of the hospital administrator will not be dimished by recognizing the importance of the physician's help with hospital management.

More than twenty-five years ago I was taught that the hospital was not for doctors, not for nurses, not for administrators, but was primarily for the sick and the injured. It is difficult for me to accept any change of view which does not put the patient first, even though this may reflect my apparent out-dated attitude towards these matters. I continue to hope that doctors will not abandon the welfare of their patients as their first and principal responsibility and will continue to "tell it like it is." They may in this manner favorably influence nurses, administrators, and hospital employees to realize that the real reason we have hospitals is for the patients.

Daniel J. Preston

# In Brief

## The Month in Washington

### New Medicaid Regulations

The AMA protested strongly against proposed medical regulations affecting payments to physicians and utilization review. The AMA termed the proposed regulation on physicians' "reasonable" charges as an anomaly because it is based on payments received with no consideration given to the usual fee. Since medicare payments made by the government are 80 percent of the reasonable charge, this amount could become the maximum of every charge under medicare. Or, were physicians to receive less than full payment and write off losses, the reduced payments could become the basis for the reasonable charge under medicaid.

The new utilization regulation would require a state medicaid plan to provide for utilization review of each item of service, including a physician's in his office or the patient's home. This could lead to a set of national standards with authorized treatment for each medical condition limited in a manner set by regulation.

### Trained Ambulance Personnel

The Committee on Emergency Medical Services of the National Research Council has recommended establishment of a nationwide program for the training of ambulance personnel. The levels of proficiency resulting from the course are attainable in most areas of the country within a reasonable time. To realize the greatest life-saving potential, the ambulance attendant of the future should be trained to the same level as lay assistants in emergency departments. Ideally he should be qualified to carry out, either independently or through voice communication with a physician, such procedures as tracheostomy, defibrillation, and mechanical external cardiac compression, the committee said. Where the needs for ambulance services are low so that he is not fully occupied, he should be an employee of a hospital, where he can maintain his interest and proficiency as an assistant in the emergency department, intensive-care unit, or operating room.

### Mental Retardation

The President's Committee on Mental Retardation reported that three-fourths of the nation's six million mentally retarded live in urban ghettos and rural slums and were unwanted, unplanned children. The committee's recommendations called for:

- Education and health services for every child from birth.
- An insurance system to give parents a free choice in selecting needed services.
- Development of national accreditation standards for residential facilities for the retarded.
- Voluntary family planning services for all Americans.

### Durham Tonometer

The Block Engineering Company of Boston is currently selling the Durham pneumatic applanation tonometer which was developed by Dr. Davis G. Durham in collaboration with Robert P. Bigliano, MSEE, and John A. Masino, BSEE, research scientists, one of whom became convinced while a patient of Dr. Durham that there was a better and more comfortable way to measure intra-ocular pressure than the conventional Schiotz tonometer. Their original report was published in *Transactions, American Academy of Ophthalmology and Otolaryngology, Dec., 1965.*

### Seaford Seminars

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 p.m. on the second and third Thursdays of each month from September, 1968, through June, 1969:

Nov. 12, *Ulcerative Colitis and Granulomatosis Colitis*, Alfred Lazarus, M.D.

Nov. 19, *Advances in Care from Birth to Six Months*, Warren R. Johnson, M.D.

### National Health Surveys

Several reports from the National Health Survey have recently been issued by the National Center for Health Statistics, HEW: *Limitation of Activity and Mobility Due to Chronic Conditions*, (PHS Publication 1000, Series 10, No. 45, 45 cents); *History and Examination Findings Related to Visual Acuity Among Adults* (PHS Publication 1000, Series 11, No. 28, 30 cents); *Osteoarthritis and Body Measurements* (PHS Publication 1000, Series 11, No. 29, 35 cents); *Monocular-Binocular Visual Acuity of Adults* (PHS Publication 1000, Series 11, No. 30, 30 cents); *Hearing Levels of Adults by Education, Income, and Occupation* (PHS Publication 1000, Series 11, No. 31, 35 cents).

### Thermography and Rheumatoid Arthritis

In an Administration-supported research project at the Temple University School of Medicine, the thermograph, is undergoing extensive evaluation as it measures and records the body-surface temperatures of patients afflicted with rheumatoid arthritis. If thermography compares favorably with current evaluation techniques, physicians can reduce crippling in two essential ways: (1) Allow physician-investigators to evaluate new treatments by plotting the subsequent progression or regression of the disease, and; (2) provide a means of detection at its earliest possible stages, when crippling is most preventable.

Every human body emits infrared radiation. If the eye were structured to see this emission, each of us would have an incandescent glow. Thermography detects the rays that comprise this glow, converts them to light energy and uses them to expose photographic film. The technique's relevance to rheumatology lies in the fact that isolated areas of inflammation emit more heat than surrounding, uninvolved regions.

Thermography should help to eliminate the uncertainties of effectiveness of treatment because it will permit physicians to evaluate the progression of a patient's disease and determine how it is responding to the therapeutic program.

### Speakers on "Ask the Doctor"

Speakers for November, 1968, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Nov. 5, James Hofford, M.D., *Emphysema;* November 12, Kenneth Corrin, Jr., M.D., *Advances in the Treatment of Cardiac Disease;* Nov. 14, Elmer F. Fantazier, M.D., *Infant Feeding and Nutrition in Children;* Nov. 26, Lawrence Katzenstein, *Fungus Infections.*

### Personal Glimpses

Richard Platt, son of Drs. David and Ethel Platt, is presently a freshman at Harvard Medical School and spent part of his summer on archeological expeditions to Italy and Greece. Platt thinks he will pursue the field of medical research at Harvard, specializing on the central nervous system.

**In the News**

C. A. D'Alonzo, M.D., has been appointed chairman of a sub-committee on Medical Guidelines for Employment of People with Multiple Sclerosis.

An article in the current issue of *Disease Detection Newsletter* announced and plugged the beginning of Delaware's second year of *Why Wait?*, the diabetes detection drive. In its first year, the blood of 4797 citizens was tested weekly at 11 detection centers scattered down the state.

## CLINICAL NOTICES AND MEETINGS

**Colon and Rectal Surgery**

The second meeting of the Pennsylvania Society of Colon and Rectal Surgery will be held November 10-17, 1968, at the Runaway Bay Country Club and Hotel, Jamaica, West Indies. For further information, write Frank H. Murray, Penn. Society of Colon and Rectal Surgery, 801 Madison Street, Chester, Pa.

**Pediatric Allergy Postgraduate Course**

A postgraduate course in pediatric allergy, St. Christopher's Hospital for Children, Pediatric Department of Temple University Hospital will be given in conjunction with the 1968 Asthma Symposium. This will be held at the Children's Heart Hospital of Philadelphia, November 6 and 7, 1968. Address inquiries to: Leonard S. Girsh, M.D., 3701 N. Broad St., Phila., Pa. 19140.

**ACP Regional Meetings**

The American College of Physicians announces the following regional meetings in November:
*New Jersey Regional,* Rutgers University, New Brunswick, N. J., Nov. 13.
*Ohio, Western Pennsylvania, West Virginia Regional,* University of Pittsburgh, Pittsburgh, Pa., Nov. 22-23.

**American College of Physicians**

The ACP presents *Stress and Disease: Relationship of Psychological and Social Forces to Pathogenic Mechanisms,* November 18 - 22, 1968, at the University of Oklahoma Medical Center, Goddard Auditorium, Oklahoma Medical Research Foundation, 825 N.E. 13 St., Oklahoma City, Oklahoma. Fees are: Members, $60; Nonmembers, $100. For further information, write: Edward C. Rosenow, Jr., M.D., Executive Director, ACP, 4200 Pine St., Phila., Pa., 19104.

**AMA Conference**

A one-day conference entitled, *Community Health Planning: the Who, What, When, and How,* will be held at the Hilton Plaza Hotel, Miami Beach, Florida, on November 30, 1968.

**National Easter Seal Society**

The forty-seventh annual convention of the National Easter Seal Society for Crippled Children and Adults will be held in Boston, November 13-16, 1968, at the Sheraton-Boston Hotel.

**Postgraduate Courses**

Hahnemann Medical College and Hospital will present *Psychedelic Drugs,* November 22 - 24, 1968, at the Marriott Motor Hotel, Philadelphia, Pa.

**Psychiatry Conference**

The Temple University Health Sciences Center, Department of Psychiatry presents *Psychiatry 1968 for the General Practitioner* November 2 and 3, 1968, at the Marriott Motor Hotel, Philadelphia, Pa. This conference is approved for 13 hours Category 1 AAGP credits. Fee: $20.00. For details, write: Claire J. Roddy, Temple University Health Sciences Center, 3400 North Broad St., Phila., Pa. 19140.

**Psychiatry Course**

The 12th Annual Postgraduate Advanced Course in *Office Psychiatry and Psychosomatic Medicine* conducted by the Department of Psychiatry, Temple University Health Sciences Center and St. Christopher's Hospital for Children will meet every Wednesday, November 6, 1968, through January 22, 1969. This course is approved for 30 hours AAGP credit. Fee: $30.00. For details, write: Barney M. Dlin, M.D., Director, 230 West Allen's Lane, Phila., Pa. 19119.

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

## DRUG ABSTRACTS

**Avlosulfon — . Pseudoleukemia**

A 40-year-old woman received topical treatment for a skin condition diagnosed as psoriasis. Complete clearing of lesions was not obtained and after six weeks the woman's physician prescribed Avlosulfon (dapsone-Ayerst), 50 mg, four times daily. After 18 days the patient experienced chills and fever and developed a confluent erythematous rash. Avlosulfon was discontinued because the patient "felt too ill to bother taking the pills." The doctor prescribed penicillin and the fever and rash subsided. Later, the patient resumed Avlosulfon on her own accord but after three days she again developed fever and stopped taking the drug. She was again treated with penicillin but there was no improvement. The patient was then hospitalized. The bone marrow showed marked erythroid abnormalities and megakaryocytic hyperplasia, suggestive of erythremic myelosis, from which acute granulocytic leukemia is known to emerge. Large numbers of promyelocytes, myelocytes, and metamyelocytes were present in the blood with 16 per cent myeloblasts. Marrow aspirated from the sternum and the iliac crest showed sheets of primitive cells.

The leukemia-like picture then changed and by the 10th to 14th days both the blood and marrow were normal. The authors stress the need for a cautious approach to the diagnosis of acute leukemia in patients with blood dyscrasias who have been exposed to drugs. Conservative management saved this patient's already poisoned bone marrow from exposure to the myelosuppressive effects of a chemotherapeutic agent which might well have resulted in a fatal outcome. Avlosulfon, originally introduced for the treatment of leprosy, has found wide use in the management of various disorders. Observations made in Vietnam suggest that the drug is highly effective in preventing recrudescence of resistant plasmodium falciparum malaria when used as a supplement to chloroquine and quinine. For this reason increasing numbers of patients can be expected to receive Avlosulfon.

*Levin, P. H. & Weintraub, L. R., (Blood Research Lab., New England Med. Cent. Hosp., 171 Harrison Ave., Boston, Mass. (Dr. Levine): Ann. Int. Med. 68:1060, May, 1968.*

* * *

**LICORICE — Hypertension**

Because licorice contains a steroid-like compound similar in chemical structure to desoxycorticosterone and aldosterone, excessive ingestion of licorice may induce severe but reversible hypertension. A 20-year-old woman who complained of headaches and fatigue was found to have a blood pressure, confirmed by intra-arterial measurement, of 200/135mm Hg in the arms and 260/150mm Hg in the legs. Balance studies showed appreciable water and sodium retention. The patient admitted ingestion of licorice estimated at 100 gm daily as candy. Licorice ingestion was terminated and the blood pressure returned to normal after 13 days. One year earlier the patient had been extensively studied for hypertension, the investigation having included surgical exploration of both kidneys for suspected renal artery stenosis. No abnormalities were found during this procedure.

Koster, M. & David, G. K. *(Dept. Cardiol., Wilhelmina Gasthuis, Amsterdav, the Netherlands—Dr. Koster), New England J. M.* 278:1381 (June 20),

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This is a monthly series of drug information abstracts gathered from current articles and prepared by the pharmacists with the purpose of alerting you on drugs and/or their complications.

Delaware Medical Journal

NOVEMBER, 1968
VOLUME 40
NUMBER 11

# URETHRAL SIZE IN FEMALE CHILDREN WITH RESULTS OF URETHRAL DILATION

• **Urethral size in female children with recurring infections is often larger than that of non-infected girls. Nevertheless, urethral dilation frequently decreases the incidence of recurrent urinary infection. Experience with 100 patients is presented.**

John H. Furlong, Jr., M.D.

Is the size of the urethra in female children with recurring infections different from that of normal children? How effective is urethral dilation in maintaining an increased urethral caliber? Some reasonably accurate answers to these two questions are necessary to help with rational treatment of female children with a history of urinary infections. Children with recurring infections, or with enuresis plus daytime control problems are usually treated with antibacterial agents, urethral dilation, urethral meatotomy, internal urethrotomy, bladder neck plasty, or some combination of these treatments. Rational treatment of this group of children cannot be given without development of better diagnostic classifications of disease and without basic statistics as to what each type of treatment accomplishes.

There are few studies reported of the caliber of the urethra in female children with infections. There is also little information as to how extensively the urethras should be dilated and as to how permanent is the dilation. No attempt will be made here to evaluate the bacteriologic and clinical results of dilation. Some of the children reported have had reinfections and are under treatment while others have remained free of infections or symptoms. None of this group has required a surgical procedure and there has been no deterioration detectable in the kidneys of any patient in the group.

### Method

One-hundred case histories (from a private urologic practice) of female children having either recurring urinary infections or an abnormal voiding pattern with daytime urge incontinence were selected at random. (Children with only one or two easily cured infections and children with enuresis alone were not subjected to urologic instrumentation. Neither of these two groups is represented in the present study.) None of the children studied had any sort of previous urethral instrumentation. Intravenous urograms were

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Dr. Furlong is Senior Member, Department of Urology, Wilmington Medical Center.

performed on 85% of the children before instrumentation and voiding cystograms were done on all. All studies were performed on an outpatient basis and no complications were encountered which required hospital admission or treatment. The urethras were calibrated with flexible woven bougie-à-boules under anesthesia. The urethral caliber was recorded as the size of the largest bougie which could be passed readily. Often, the next smaller size bougie demonstrated some resistance to its removal from the urethra, and in most of the cases, the next larger bougie could not be passed. It is probable that different observers using more rigid or metal bougies, and slightly different techniques might record urethral sizes a little larger or smaller. The reported observations were all done by the same individual using the same technique. The original urethral calibration was followed by cystoscopic examination, urethral dilation, and a voiding cystogram in that order. On passing the urethral sounds, there was usually a fairly marked resistance to passage of instruments about 3F sizes larger than the bougie caliber. After this dilation was accomplished, sounds of increasing caliber would pass much more easily until a second occurrence of urethral tightness was noted and the dilation was ended. The urethras were usually dilated about 11F sizes larger than the caliber as determined by bougie. This extensive dilation was not performed until mid-1963 after the work of Lyon and Smith[1] was published. Repeat urethral calibration was done in 19 children because of recurrent infection in 11 and reflux in 8.

### Results

Table No. 1 shows the number of patients in each two-year age group with the corresponding figure for mean urethral caliber. Immergut, Culp, and Flocks[2] similarly calibrated the distal urethras of 103 normal female children in the same age range. All of the calibrations were done with the children under anesthesia for tonsillectomy and none had any urinary abnormalities or suspicious urinary histories. Table No. 2 shows the mean distal urethral size in normal girls as recorded by Immergut and the corresponding urethral size in the present series of children with infection or definite symptoms. In general, the children with urinary symptoms had larger urethras than the normal group. This observation is also substantiated by additional work by Immergut and Wahman.[3] Immergut extended his observations on urethral caliber to a group of 77 female children with recurrent urinary infections and found the urethras larger than in their previously reported normal group. (Table No. 3)

Table 1

URETHRAL SIZE

| Age Group | No. of Pts. | Mean Urethral Size (F) (3F=1mm Diameter) |
|---|---|---|
| 0 to 2 Yrs. | 4 | 14.5 |
| 2 to 4 Yrs. | 25 | 16.3 |
| 4 to 6 Yrs. | 37 | 17.6 |
| 6 to 8 Yrs. | 21 | 19.7 |
| 8 to 10 Yrs. | 6 | 17.3 |
| 10 to 12 Yrs. | 7 | 22.0 |

Intravenous urograms were performed on 85% of the cases. Definite dilation or anomalies were seen in only seven instances and five of this group demonstrated vesico-ureteral reflux. In the entire series, reflux was noted in 15%. The incidence of reflux was about the same as that reported by St. Martin[4] in a somewhat similar series of cases (13.5% of 75). In the present series, usually only one resting low-pressure cystogram plus two voiding films were taken. Undoubtedly, more instances of reflux would have been seen had

Table 2

| | Immergut Et Al Normal Girls (103 Cases) | | Present Series Symptomatic Girls (100 Cases) | |
|---|---|---|---|---|
| Age Group | No. of Pts. | Mean Urethral Size | No. of Pts. | Mean Urethral Size |
| 0 to 2 Yrs. | 15 | 14.0 | 4 | 14.5 |
| 2 to 4 Yrs. | 18 | 15.3 | 25 | 16.3 |
| 4 to 6 Yrs. | 23 | 15.4 | 37 | 17.6 |
| 6 to 8 Yrs. | 25 | 16.8 | 21 | 19.7 |
| 8 to 10 Yrs. | 16 | 19.5 | 6 | 17.3 |
| 10 to 12 Yrs. | 6 | 21.0 | 7 | 22.0 |

Table 3
URETHRAL CALIBER IN GIRLS WITH RECURRENT INFECTIONS
(Adapted From Immergut and Wahman)

| Age | No. of Pts. | Mean Urethral Caliber |
|---|---|---|
| 0- 4 | 33 | 20.7 |
| 5- 9 | 34 | 21.9 |
| 10-14 | 7 | 22.9 |

more films been taken or the cine unit used routinely. There is serious doubt, however, that the finding of additional reflux by repeated studies should alter the treatment or followup.

Repeat urethral calibration and dilation was done in 19 cases in from six months to two years after the original calibration and dilation. Re-examination showed that the urethras had remained larger than the original size by an average of 5.8F. units when checked at six months. The results at one and two years were equally lasting.

## Summary and Conclusions

The urethral size of 100 female children with repeated urinary infections or persisting urinary symptoms has been reported. The sizes noted were slightly larger than those recorded by Immergut in a group of normal children. Clinical impressions still favor the view that adequate urethral dilation makes recurrent infections less frequent and easier to control. If one treats urinary infections in girls by dilating their urethras, it is apparently paradoxical that the infected children have larger urethras to begin with than do normal children. The data suggest that something other than mere urethral size is related to recurring urinary infection in girls.

Extensive urethral dilation in the present series consisted of dilation averaging 11F sizes larger than the original calibration as determined by bougie-à-boule. This single dilation resulted in an increase in urethral size of 5.8F. units in 19 girls when recalibrated at least six months later. Hospitalization is not required for the dilation and no complications were encountered.

Repeated routine urethral dilations seem to be unnecessary to maintain an adequate urethral size. Urethral meatotomy, internal urethrotomy, or extreme dilation with a Kollmann dilator are used by some urologists to enlarge the urethra but their results in terms of maintained urethral size are yet to be documented. There is doubt that the extra expense, morbidity, and hospitalization for these procedures is justified by improved results.

Until other causes are found for recurring urinary infections in female children, one stage extensive urethral dilation with sounds seems to be a simple, adequate, and relatively permanent treatment for any urethral obstructive factors.

REFERENCES

1. Lyon, R. P. and Smith, D. R.: Distal Urethral Stenosis. J. Urol. 89: 414, 1963.
2. Immergut, M., Culp, D., and Flocks, R. H.: The Urethral Caliber in Normal Female Children. J. Urol. 97: 693, 1967.
3. Immergut, M. and Wahman, G.: Urethral Caliber in Female Children with Recurrent Urinary Tract Infection. J. Urol. 99: 189, 1968.
4. St. Martin, E. C., Campbell, J. H., and Pesquier, C. M.: Cystography in Children. J. Urol. 75: 151, 1956.

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## ERRATUM: Hossain, not Hasan

Most heinous on the list of possible editorial sins is crediting the work of one author to another. The abstract of Dr. Van Prohaska's address on the management of mammary cancer metastases in our October issue was prepared by Dr. A. K. M. Zakir Hossain of the WMC surgical housestaff, not as we erroneously indicated by Dr. Shahed Hasan of the medical housestaff. We appreciate Dr. Hossain's efforts and are sorry to have credited the wrong person. Incidentally, Dr. Hossain hails from East Pakistan, and Dr. Hasan, from West Pakistan, and we are not the first to confuse them; although this by no means excuses our error, it does explain how easily it could occur.

# LIPID PNEUMONIA MASQUERADING AS ASTHMA

**• Asthma is a multi-faceted problem. The use of mineral oil as a laxative or of oily nose drops should arouse a high index of suspicion of lipid pneumonia. The clinical picture may suggest bronchial asthma. The case presented is the fifth in medical literature correlating detailed pulmonary function studies with the disease.**

James M. Hofford, M.D.

Pulmonary function studies in a patient with lipid pneumonia are described in detail and compared with the four previous reported cases. The pulmonary function studies are correlated with the clinical, roentgenographic and pathological findings in the disease. The presence of a severely reduced vital capacity in the region of 50% of normal should arouse one's index of suspicion of the presence of lipid pneumonia. Further case reports are necessary to establish a more definite pattern of pulmonary function in lipid pneumonia. Prednisone may be helpful in therapy.

### Description of Lipid Pneumonia

The first description of lipid pneumonia was made in 1925 by G. F. Laughlin.[1] Since that time, there have been numerous clinical studies describing the clinical and pathological findings in this disease. The hazard of using oily nose drops or mineral oil as a laxative is now well known by most physicians and so they are not generally prescribed. There are still patients, however, who do use mineral oil as a laxative and in these patients the possibility of lipid pneumonia as a cause of pulmonary abnormality should be considered in differential diagnosis. Lipid pneumonia may resemble other pulmonary diseases such as sarcoid, tuberculosis, bronchiectasis, fungus disease and neoplasm.

The literature is filled with extensive studies of lipid pneumonia; however, there are only four cases reported in which full studies of pulmonary function were made. The first case of lipid pneumonia was described in 1962[2] the second in 1964[3] and the third and fourth cases in 1967.[4]

### Methods

In this case the diagnosis of lipid pneumonia was considered when a history of eleven years of mineral oil ingestion was encountered. This was further authenticated by x-ray findings and the discovery of lipophages in the sputum.

Our method of examining the sputum for lipophages varied slightly from those previously published.[5] Figure 1 shows a slide that was prepared from a morning sample of sputum by staining the preparation with oil red-O and Harrison hematoxylin stains.

The measurements of lung volumes and ventilation tests were performed according to the methods of Baldwin, Cournand and Richards.[6] The single breath carbon monoxide diffusion was performed according to the method of Ogilvie et al[7] using neon as the inert gas. The pH was measured on the Beckman expandomatic meter. Carbon monoxide, neon, oxygen, carbon dioxide, and nitrogen gases were measured on an F&M Model 720 gas chromatograph. Blood oxygen and carbon dioxide were measured with the Van Slyke manometric apparatus.

### Case Report

This 62-year-old white woman was first seen on May 9, 1966. Her chief complaint was shortness of breath.

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The history of present illness revealed that the patient had had asthmatic bronchitis for six years. The initial symptoms began with a rather severe bronchitis that subsequently recurred about two times a year. Symptoms of mild bronchitis were always present with the expectoration of white foamy sputum. There were intermittent episodes of wheezing and coughing. Dyspnea was always present. When not having a severe asthmatic attack, she was able to walk ten blocks on the level and climb one flight of stairs. During paroxysms the dyspnea was rather severe and she was only able to walk the length of half a room in her house and was not able to climb one flight of stairs. She often had night sweats. The review of the systems showed that she had lost ten pounds in the past year. She admitted to occasional stuffiness of the nose.

The past medical history revealed that she had an episode of hives seven years previously. She had a hysterectomy 25 years ago. Marital history revealed that her husband died with lung cancer. She has two children living and well. Family history showed that her mother died at age 71 due to heart trouble and the father died at age 59 with a stroke. Social history disclosed that she is a housewife and had worked recently as a clerk in a drug store. She had smoked about one-half pack of cigarettes per day for over 20 years but had recently stopped. She takes a rare alcoholic drink. She had been receiving various medications in the last few months such as Tedral, Isuprel Medihaler, Dimetane Expectorant, Valium and prednisone. The prednisone seemed to produce rather marked relief of her symptoms. The patient admitted to using mineral oil as a laxative for 11 years. She took one-half to one ounce every two or three nights. She occasionally took the mineral oil directly out of the bottle. The son states that she always purchased a "large bottle."

Table I

PULMONARY FUNCTION TESTS

*Ventilatory Function*

| Lung Volume | Predicted Value | Before Bronchodilator | Per Cent Of Normal | After Bronchodilator |
|---|---|---|---|---|
| Vital Capacity $mm^3$ | 2525 | 1215 | 49% | 1308 |
| Expiratory Reserve $mm^3$ | —— | 270 | —— | 315 |
| Maximum Breathing Capacity Liters/min. | 72 | 25 | 35% | 32 |
| Maximum Expiratory Flow Rate Liters/sec. | 4 to 6 | 0.8 | 20% | 1.0 |
| Residual Volume $mm^3$ | 1675 | 2450 | 146% | —— |
| Total Lung Capacity $mm^3$ | 4200 | 3665 | 87% | —— |
| Residual Volume / Total Lung Capacity % | <35% | 67% | —— | —— |
| Index Of Intrapulmonary Mixing | <2.5% | 3.5% | —— | —— |

Walking index = 0.86 (Normal = <0.25)

Walking Ventilation = 12.5 1/min/$m^2$. (Normal = 9±1)

The physical examination showed weight, 140 pounds; temperature, 98.6 F; blood pressure, 180/100; pulse, 90; respiratory rate, 15. She was pale. The lips were slightly cyanotic and appeared dry, and she had dentures. The lungs were resonant to percussion. There were expiratory wheezes and inspiratory, coarse, moist rales scattered throughout both lung fields. Breath sounds were slightly reduced in intensity. The heart showed normal sinus rhythm with no murmurs. There was 1+ pedal edema in the left leg. The remainder of the physical examination was within normal limits.

The laboratory studies revealed that the electrocardiogram was normal except for minor T-wave changes in lead I and aVL. The tuberculin *Tine* skin test was negative; CBC was normal; and urinalysis showed only 1+ albumin. Feasting blood sugar was 100;

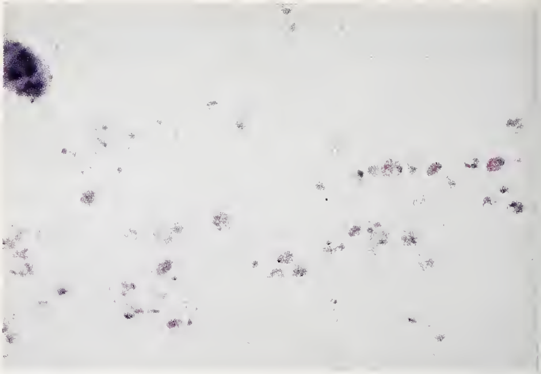

FIGURE 1

A Kodacolor print of a microscopic view of the smear of the patient's sputum. The magnification power is 45X. The lipophages are easily visible and the oil red-O stain of the fat can be seen as red droplets in the cytoplasm of the cells. The cells were easily visible in many fields of the slides.

serum cholesterol was 379; and BUN was 23 mg per 100 ml. VDRL was non-reactive. The electrophoretic pattern of the serum proteins showed total protein of 8.2; albumin, 4.26; alpha 1 globulin, 0.42; alpha 2 globulin, 1.00 (slightly increased); beta globulin, 1.01 (slightly increased); and gamma globulin, 1.52 gm%. An x-ray of the paranasal sinuses was reported normal.

Chest x-ray (Figure 2) showed a considerable increase in lung markings in the lower third of each lung field, especially in the left lower lung area compatible with fibrosis and acinar involvement.

The sputum was examined for lipophages or fat-laden macrophages and was found to be markedly positive (Figure 1). The lipophages found in the alveoli are mononuclear cells that contain droplets of various sizes in their cytoplasm. These droplets or vacuoles in the cytoplasm turn orange red with Sudan III or oil red-O stain and represent fatty material. The cells were considered to be healthy because of their normal appearing nuclei. Laughlin[1] originally called these cells endothelial leukocytes. They are now known as fat laden macrophages or lipophages.

### Pulmonary Function Studies

Pulmonary function studies in this case (Tables I and II) demonstrate severe restrictive disease with a vital capacity of 49% of normal. The reduced maximum breathing capacity and maximum expiratory flow rate are evidence of severe obstructive disease with definite improvement after bronchodilator therapy. There is evidence of obstructive disease as seen by the elevation of the end expiratory point on the spirogram while maximum breathing capacity was being performed. There is hyperventilation associated with severe dyspnea while walking. The breathing reserve is quite reduced since the walking index indicates that 86% of the maximum breathing capacity is used when she walks for one minute. Additional evidence of obstructive disease is seen by the residual volume of 140% of predicted normal. The total lung capacity is only 87% of predicted normal despite the increased residual volume; this is due to the considerably reduced vital capacity. The residual volume-to-total lung capacity ratio is considerably increased demonstrating that the residual volume occupies a far greater than normal percent of the total lung capacity. The index of intrapulmonary mixing is quite elevated at 3.5%, demonstrating a marked disturbance of gas mixing within the lung as is often seen in many obstructive diseases such as emphysema.

The blood gas studies demonstrate a rather serious degree of arterial anoxia at rest with a significant decrease in oxygen saturation on minimal exercise. There is a tendency to respiratory alkalosis as shown by the increased pH and reduced $pCO_2$.

The respiratory gas exchange demonstrates a normal oxygen consumption and a slightly increased respiratory quotient as seen in hyperventilation. The resting ventilation level is increased to 5.3. There is, indeed, slight alveolar hyperventilation. The respiratory rate and tidal volume are normal. The physiological dead space is normal.

The single breath CO diffusion is within normal limits which rules against any involvement of the alveolar capillary membrane.

These pulmonary studies are compatible with a severe degree of restrictive pulmonary disease such as can be seen with pulmonary fibrosis. This restrictive disease is associated with a significant amount of obstructive disease as can be seen in emphysema. There is no evidence of an alveolar capillary block involvement.

### Hospital Course

The patient was treated during hospitalization with face mask aerosol treatments of Isuprel, Neo-Synephrine, and distilled water. She was given instructions in breathing exercises. She received intravenous drips of ACTH for approximately five days. She was placed on a low cholesterol diet. The ingestion of mineral oil was stopped. She improved significantly and ceased having the severe asthmatic attacks that she had prior to hospital admission.

### Discussion

Lipid pneumonia is due to the insidious movement of non-irritative oils into the lung. These oils do not seem to evoke the usual cough reflex. Early writers believed this entity occurred only in people who had disturbances of the swallowing mechanism. It is now known that the use of these oils by healthy people can also result in lung damage. The amount of mineral oil ingested need not be great. In Laughlin's original cases one child had evidence of lipophages in the alveoli after a dose of only two drams of mineral oil.

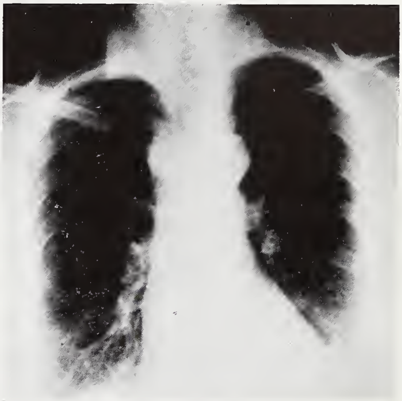

FIGURE 2

A roentgenogram of the chest demonstrating the changes in the lower third of each lung field. Note that the infiltration in the left lower lung field is particularly prominent and there is considerable confluence of the infiltrate.

Pinkerton[8] has shown that neutral vegetable oils produce little damage to the lungs, except Chaulmoogra Oil which causes necrotizing pulmonary lesions. Animal oils and mineral oils cause a marked tissue reaction.

Permar[9] stated that the endothelial leukocytes or fat laden macrophages arose from blood vessels of the alveolar walls. He felt that the stimulus created by foreign bodies in the alveoli caused endothelial cells to proliferate, develop ameboid movements, enter the alveoli and become phagocytic. These cells accumulate in the alveoli in large numbers. A mild inflammatory reaction develops in the alveoli and in the surrounding bronchioles. Necrosis is rare. A reticulum of collagenous fibers is laid down between the cells with giant cell proliferation. The alveolar walls become thickened by fibrous tissue and in the later stages the alveoli become lined with cuboidal cells. In the advanced stages tumor-like masses of granulomatous tissue called paraffinomas develop. The lipophages may disintegrate and set free the fat which may then be expectorated or carried to regional lymph nodes. Indeed, sometimes the lipid material may be carried to viscera such as the liver, spleen, kidneys or adrenals, where granuloma-like lesions are formed.[10]

The diagnosis of lipid pneumonia is based on the finding of these lipophages in the sputum. The mere presence of extracellular fat in the sputum is not sufficient. The diagnosis is more firmly established when there is an x-ray picture compatible with the disease and a history of the use of mineral oil or oily nose drops is obtained. Needle biopsy of the lung or lung biopsy by open thoracotomy are the most reliable methods of making the diagnosis. However, the latter two methods are not always easy to perform.

The clinical picture of lipid pneumonia is not specific. There are no characteristic symptoms. The patient may have a productive cough, dyspnea, or intermittent febrile reactions. In some cases, the patients are asymptomatic and attention is called to the condition by routine x-ray. In the later stages cough and dyspnea have been described.

The x-ray picture has been aptly described.[3] In lipid pneumonia there is an acinar pattern recognized on the roentgenogram. The acinar pattern is characterized by a group of diseases in which the fine air spaces contain transudate, exudate, or aspirated material. Diseases demonstrating an acinar pattern are to be distinguished from those showing the diffuse pulmonary disease wherein there is primarily interstitial involvement and secondary obliteration of the air spaces or acini. Acinus filling is common roentgenographic denominator in idiopathic or secondary pulmonary hemosiderosis, pulmonary alveolar proteinosis, acinous-nodose tuberculosis, aspirated blood, and in the margins of advancing consolidation in pneumococcal pneumonia and pulmonary edema.

After the early stages of acinar consolidation on the x-ray, there develops streaking and nodular infiltrations as evidence of interstitial involvement of the lung. Pulmonary fibrosis develops and this is followed by contraction of the surrounding tissue and granuloma formation which may be associated with massive shadows on the x-ray.

The pulmonary function studies published in the case report of Miller et al[2] in 1962 showed evidence of severe restrictive and obstructive disease consistent with emphysema secondary to pulmonary fibrosis.[11]

The pulmonary function studies in the case of Weil et al[3] in 1964 demonstrated restrictive pulmonary disease without airway obstruction; in contrast to Miller's findings, the carbon monoxide diffusion was reduced. They believed their case represented an earlier stage of the disease than that presented by Miller.

Avayzian et al[4] in 1967 published two cases of lipid pneumonia. The first case was thought to have clinical emphysema. There was evidence of mild restrictive disease with a vital capacity of 86% of normal and very slight obstructive disease. Oxygen tension at rest was moderately reduced, but no exercise or diffusion studies were reported. The second case had longstanding clinical asthma. Pulmonary function tests demonstrated minimal restrictive disease with vital capacity of 95% of normal, but rather severe obstructive disease was present. The oxygen tension was moderately reduced and no exercise or diffusion studies were performed.

The present case is compatible with restrictive disease such as pulmonary fibrosis associated with obstructive disease such as emphysema. There is no evidence of a diffusion defect. The possibility of smoking as a contributing cause of obstructive disease cannot be denied; however, the patient was only a one-half pack-per-day smoker. Emphysema alone should not produce the severe degree of restrictive disease that is demonstrated here. Indeed, restrictive disease with a vital capacity of 50% of predicted normal is distinctive in the first two cases published in addition to the case herein described.

## Summary

The clinical pathological and roentgenographic aspects of lipid pneumonia are discussed.

The present report represents the fifth case in the literature describing pulmonary function studies in lipid pneumonia.

Typical pulmonary studies in lipid pneu-

Table II
PULMONARY FUNCTION TESTS
*Rest and Exercise Studies*

| Value | Normal | Rest | Exercise |
|---|---|---|---|
| $O_2$ Content Vol % | —— | 15.6 | 15.1 |
| $O_2$ Capacity Vol % | 16-22 | 17.4 | 18.1 |
| $O_2$ Saturation % | 96-98 | 89 | 84 |
| $CO_2$ Content Vol % | 46-52 | 46 | 46 |
| Ph | 7.38-7.42 | 7.48 | 7.47 |
| $Pco_2$ mm Hg | 38-42 | 33 | 34 |
| $CO_2$ Excretion mm$^3$/min/m$^2$ | 88-120 | 125 | —— |
| $O_2$ Consumption mm$^3$/min/m$^2$ | 110-150 | 130 | —— |
| R. Q. | 0.8 | 0.95 | —— |
| Ventilation liter/min/m$^2$ | 3.5 | 5.3 | —— |
| Alveolar Ventilation liter/min/m$^2$ | 2.3 | 3.2 | —— |
| Respiratory Rate | 12 | 19 | —— |
| Tidal Volume mm$^3$ | 500 | 455 | —— |
| Physiologic Dead space mm$^3$ | 150 | 149 | —— |
| Single breath CO diffusion mm$^3$/min/mm Hg | 15 to 35 | 31 | —— |

monia will reveal evidence of severe restrictive disease. Vital capacity in the region of 50% of normal should increase the index of suspicion of lipid pneumonia.

The finding of obstructive disease compatible with emphysema has been described and is compatible with a later stage of lipid pneumonia. An impairment of carbon monoxide diffusion in an earlier stage of the disease has also been described.

There is need for closer correlation of the stage of the disease with pulmonary studies and in particular with diffusion tests. It is hoped that further case reports will be helpful in categorizing the findings in lipid pneumonia from the standpoint of pulmonary function.

Prednisone over a short period produced marked subjective relief. Objective signs of improvement were not demonstrated by pulmonary studies in this case, probably due to the short period of observation.

The use of mineral oil as a laxative is again shown to be a serious health hazard; its use should be strongly discouraged. When considered irreplaceable, it should be administered during the day rather than at bedtime when normal cough mechanisms may be dormant. Mineral oil sold in drugstores for use as a laxative should be appropriately labeled as dangerous.

Severe dyspnea after walking for 2 minutes at a rate of 180 feet per minute.

Spirogram does not show air trapping, but does show definite elevation of the end expiratory point while doing the M.B.C.

Exercise consisted of 10 step-ups on a step stool and was stopped because of onset of dyspnea.

## ACKNOWLEDGMENTS

I am indebted to Francis P. Rovitti, M.D. for allowing this case to be studied.

Appreciation is given to Miss Geradine Wozniak and Mrs. Helen Tang for their expert technical assistance in performing the pulmonary function tests.

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# POINTS ABOUT JOINTS

## *PART II*

Irvine M. Flinn, Jr., M.D.

### The Shoulder

Acute subacromial bursitis is an extremely painful condition. Usually Novocaine (or similar local anesthetic) and hydrocortisone injections will cure it. As a warning remember that if the injection is attempted and no calcium is withdrawn (that is, if the needle does not hit the area where the calcium is) the patient may be in for an extremely severe attack of pain for which he will require large doses of narcotics and which may last two or three days.

All acute shoulder conditions are not bursitis; this is one of the common pitfalls of orthopedics. The acutely frozen shoulder is an example of this. In this condition infra-red and massage plus passive motion only should be instituted. The shoulder should not be manipulated in the acute stage, nor should the patient attempt to move it with his own muscle power until such time as the condition is relieved. As soon as the pain is gone, it is time to give the shoulder more of a workout. Pendulum exercises are of extreme value.

*Chronic dislocating shoulder.* For some time, I have been treating chronic dislocating shoulder with the Magnuson procedure, subscapularis transplant. I have opened the shoulders widely through an incision along the clavicle and around the acromion so as to obtain good exposure. It has been interesting to note the position of the insertion of the subscapular tendon. Sometimes it is high up, almost on the joint surface. At other times, it is low down, almost beneath the edge of the lesser tuberosity. In doing the operation, I always attempt to make my crater for the bony attachment of the tendon larger than the attachment so that there will be no overriding of excess bone and callus to impinge against the acromion, and I always make a point of placing the tendon in a horizontal position. In my hands, this operation has been quite successful. Most of the operations have been on football players and they all returned to the game.

The torn rotator cuff of the shoulder has always been a problem. I have always hated to remove a portion of a cartilaginous surface in order to obtain good bony contact with the torn cuff. In one instance the following procedure was used and eliminated this difficulty. The cuff had been torn way around so that the entire joint could be seen and the biceps tendon likewise had been torn out of its groove. The tendon was surgically severed at the glenoid and the cuff brought back and repaired as much as possible all the way around, leaving the usual triangle with denuded cartilage with the apex at the infraspinatus which could not be brought down much past the glenoid. Through a drill hole from the insertion of the infraspinatus in the tuberosity to the bicipital groove, the biceps

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Dr. Flinn, presently retired, practiced Orthopaedic Surgery, July 1929 - July 1965, and was a Diplomate of the American Board of Orthopaedic Surgeons. He was Chief of Service at Delaware, Memorial and St. Francis Hospitals, and Consultant to Delaware State Hospital, the State Welfare Home at Smyrna, Delaware Curative Workshop, the Children's Bureau and all the downstate hospitals. Dr. Flinn served two years as President of the Medical Board of Delaware Hospital and supervised the State Board of Health's Crippled Children's Clinics.

tendon was threaded. It was sutured at its entrance to the tunnel in the groove and then from the tuberosity it was attached under as much tension as possible to the infraspinatus tendon. The sides were then flared out so that the tendon covered the entire area of denuded cartilage. It was then sutured to the sides of the capsule and the redundant tendon removed. This man did extremely well despite such a disabling injury. I am certain his recovery and use of the shoulder was more rapid than with the usual type of procedure.

I would like to make a plea for better treatment and consideration of humerus fractures. I have no fault to find with a hanging cast when handled properly, but I find a tendency to do excessive operating and insertion of wires and rods in the humerus especially if there has been a non-union. There is still a tried and true way of taking care of a humerus non-union; that is, with an onlay bone graft. Bone grafts take better in this position than anywhere else in the body and are almost foolproof when applied properly. Always transplant the radial nerve.

### The Forearm and Wrist

*Tennis elbow and radiohumeral bursitis.* In considering the elbow, there are two conditions in the outer aspect of the elbow which are quite important. One, the so-called tennis elbow, is a myofascitis, and the other is radiohumeral bursitis. Interestingly enough, frequently tennis elbow is aggravated on extension of the elbow and wrist, and the radiohumeral bursitis is aggravated on flexion of the elbow. Injection with Novocaine and hydrocortisone will frequently take care of both conditions. However, occasionally the radiohumeral bursa has to be removed.

*Delayed ulnar palsy.* We occasionally run into difficulty with a delayed ulnar palsy and then a transplant is in order. A word of caution regarding transplant of this particular nerve; extending from the median nerve are several small fibers which innervate the skin around the medial anterior elbow joint. If in the course of transplanting, they are left in position and the ulnar nerve placed on top of them, there is going to be considerable difficulty, pain, and discomfort later. The ulnar nerve should be placed deeply enough so that it will not interfere with the superficial nerves of the medial condyle.

A badly injured elbow from injury or disease must be considered in a special light. With limited motion and pain, the arm is practically useless. A perfectly stiff, fixed elbow is awkward and is frequently in the way. A much more usable arm is one with a flail elbow. It seems to me that today we sometimes tolerate a painful swollen arm because we are not willing to do "crippling" surgery. Actually when symptomatic improvement is obtained, there is less "crippling." A resection of the elbow joint is feasible and gives a more usable and controllable extremity than a fixed, stiff elbow. The patient soon learns his limitations and can do real work. Let us not forget Albee's admonition that if there is a little olecranon left, the leverage of the triceps is improved.

*Radioaxial dislocation.* In a series of radioaxial dislocations, semilunar in type, with associated fracture of the navicular, it was found that reduction of the navicular maintained the reduction of the dislocation. A good reduction of the navicular fracture and union thereof resulted in a good functioning wrist. Three different methods were used in attempting to obtain and maintain reduction of the navicular. One was traction with pins through both bones of the forearm and through the metacarpals and fixation in plaster, but this was unsatisfactory because it did not maintain accurate reduction. Another method was an attempt to mold the wrist in plaster and pull it into position. This likewise failed. The third method was a bone graft, and this worked better than any of the others; the patient was able to go back and perform the work that he had been doing before operation. I believe some method of pullout wiring which would approximate the fragments and hold them together under slight pressure could be utilized, but I have not had occasion to try this.

In all badly fractured or injured wrists where the ulna is involved as well as the radius, it is well to take a close look at the radioulnar joint at the wrist. Occasionally there is not room for rotation and rotary motion is quite painful. This is easily taken care of by operation by the Darrach method; if the operation is done properly. A portion of the ulna is removed on the medial side and carried up part way on the shaft of the ulna so a sliver of bone is taken away. This allows rotation of the radius on the ulna at this point and usually gives a very satisfactory wrist. In one group of six orthopedic surgeons I spoke with, only one had heard of this procedure.

### The Back

In examining the back, a careful history should be taken so that there is an accurate account of what has happened; duration of pain, whether it is acute or chronic, to what extent it goes and where, and its intensity. Sometimes, there is little more than discomfort, but the area of discomfort is important. Loss of motion and the inability to get about must also be considered. By observation it can be determined whether there is a drooping shoulder, winged scapulae, curvatures (lateral or dorsal), wedging round back, increased kyphosis, increased lordosis, lumbosacral angle, and a list of the pelvis. The patient should be put through all motions in order to determine how flexible his back is. Having considered all this, palpation is next in order. Let your fingers and thumbs do the work. If there is dorsal involvement, there will probably be some increased kyphosis and tenderness or muscle spasm which is usually palpable as fusiform areas in the erector groups. In the lumbar area the thumb is the most important tool for the examination. With the thumbs palpate the tip of each transverse process. Note the pain points. Also palpate the spinous processes and the apophyseal joints for tenderness and palpate the dimples over the posterior-inferior iliac spines. Then facing the patient place your thumbs under the anterior iliac spines to determine the list of the pelvis. Place the fingers on top of the iliac crests to check your first examination. Check with the thumbs on the posterior-inferior iliac spines again for a list of the pelvis, and with the patient supine measure leg length. It is impossible to measure leg length without the pelvis being level; so make it level. Then measure from up against the anterior-superior spine to below and against the lateral malleolus. You have now checked for list of the pelvis four ways and they should coincide. If there is discrepancy in leg length, then there is a shortness on one side by the amount of difference in measured leg length, but check it again to be sure. If there is no difference in leg length, then the patient is standing in such a way that one side of the pelvis is lowered; usually this is due to an inward rotation of the leg on the low side. A wedge on the inner border of the heel on this side should cause the pelvis to level off.

For further information, consult Henry Kendall's work in Baltimore, Maryland. Frequently, it is said that measurements such as these are not always right. That is occasionally so; mainly for the following reasons. We are not dealing with certainties. There are many variables and one must draw conclusions based on experience and not absolute scientific fact which, of course, places the practice of orthopedics in this area in the category of art rather than exact science. In the first place, the patient before you is a stranger, an unknown quantity. He may appear to be wholly at ease, but you cannot know what he is thinking about and whether or not there isn't some slight abnormal spasm in his stance while he tries to be nonchalant though he is actually scared stiff. Or he may be outwardly calm and all of a sudden start exuding large drops of perspiration from his axillae. Is this man completely relaxed? We do not know though we have to assume he is, and there lies an occasional mistake in diagnosis. That is why I like these four checks on leg length. If they coincide, the probabilities are that they are right, but every once in a while the second check-up, one to two weeks later, may show a difference. An x-ray diagnosis of short leg on a routine film means nothing.

With the patient standing, have him bend forward as far as possible, touch the floor, arch his back, rotate both ways and bend laterally. Before a back examination is complete a hip examination should also be done. Thorough examination of the buttocks by thumb and finger palpation will frequently reveal tender areas. Both hips must be put through their motions to detect any loss of motion and especially a flexion contracture which will cause a difference in the distance from the anterior-superior spine to the lateral malleolus. Because of the prevalence of parathecal difficulties, the straight leg raising test should be done also.

Some time in the late thirties at a meeting, Bruce Gill and Smith-Peterson were talking and I was listening. Bruce said, "Have you ever noticed in an x-ray how sometimes the tips of the lumbar transverse processes look as though they had increased calcium in them?" He also remarked that if you put your thumbs on them, they were sometimes quite tender. I have been noticing this ever since. I always make a special point of examining the lumbar transverse processes because I feel they frequently give me the proper course to take in prescribing treatment. First of all be assured that tenderness elicited from a transverse process is not the same as and is frequently more acute than a so-called trigger point. In a certain number of instances, the reaction about the tip of a transverse process is very similar to tennis elbow; hence is a myofascitis. Cure can occasionally be as quick and satisfactory. It seems to me that because of their location, the transverse processes are subject to constant flexions and extension with an occasional twisting and snapping of ligaments as position changes. Furthermore, we are not trained to move these areas and, consequently, we are not mentally conscious of their presence. Thus, we cannot accurately locate discomfort in this area. This seems so because frequently the patient knows he has a sore back, but he is not aware of the exact location until it is discovered by the examiner's thumb. Oftentimes, after a painful tip of the transverse process is discovered and injected with Novocaine, the patient will complain of pain in the region he first complained of. This is especially true of injection about the 2nd lumbar area. The patient has complained of pain in the back, but also of pain on the outer side of the knee. Upon injection he will say, "Oh, that's it right down there by my knee." I presume that in injecting the transverse process, his lumbar nerve has been irritated, but he has never complained before of pain in the region of the injection. I one time had a patient — a very intelligent boy of 14, who had had polio and quite recovered from it. He was complaining of pain in his left flank posteriorly which was a bit odd for a person of his years. When I examined him, he had tenderness in what appeared to be a bony excrescence there. He said that this was not anything new; every once in a while he had a severe, sudden pain in his flank and a dimple appeared. Then he had to sit around for a day until the pain left and the dimple disappeared after which he would be able to do anything until it occurred again. X-rays revealed bilaterally slightly elongated third lumbar transverse processes. He needed no treatment.

In England during World War II, a sergeant of infantry came to the hospital complaining of pain in his left side. He knew where it was. It was over the tip of the 2nd lumbar left transverse process. He was unable to keep up with his company on maneuvers and because they were soon going to be in the invasion, he wanted something done. His signs and symptoms were genuine. X-rays were negative. I took his left 2nd lumbar transverse process completely away. He recovered and was definitely better than before operation. I discharged him back to his company and hope he made the beaches all right.

I believe that sometimes tenderness in the transverse process tip is secondary to trouble elsewhere in the spine; similar, I suppose, to secondary scalenus anticus discomfort, but certainly a few cases are primary. One very important type is seen in office practice. A man comes in bent straight over. His complaint is that he experienced sudden discomfort and since then he has been unable to straighten up. This is true. You, the physician, cannot pull him straight either because of pain. To examine him, place your thumb over the transverse processes, and when the right one is touched, he will hop half-way across the room, and cuss, too. I believe he has sustained an acute tear of the ligaments around the transverse process. A few cc of Novocaine in the right place and he can straighten up and is ever grateful.

*Fractures.* While we are on the subject of transverse processes, I think it best to mention fractures. The most successful method I know for taking care of a fractured transverse process is to strap the side with adhesive plaster going well past midline on each side from the rib margin and including the pelvis. Four or five thicknesses of adhesive should be used so the tape will act as a real splint. This usually makes the patient quite comfortable and he can get about. If the patient is placed in a cast (which is another method of treatment and works about as well), there is great danger that he will feel that he has a broken back. This in the minds of the laity is a fearful thing. Therefore, make it a point never to refer to his back as broken. Mention only that he has a little crack in one of the small bones.

Sometimes a patient will arrive with an acute backache, but bent over to one side. History will help; especially the duration of pain. After a conscientious examination, place him on his back, flex his thighs and knees up to the knee-chest position, then sit him up, and get him to stand. He will be much better and sometimes he will be well. It works frequently enough to make it worth a try. At any rate, complete flexion of the spine will do him no harm and most of the time it will relax spastic muscles and relieve the pain.

Let us consider some other related conditions before we consider the postural back. Often a patient complains bitterly of pain in the gluteal area and there occasionally can be found a very tender lipoma usually near the posterior-inferior iliac spine. There may also be areas of tenderness in the gluteal region and sometimes deep tenderness over the piriformis, as described by Freiberg. More laterally, and not to be dismissed lightly, just above and posterior to the greater trochantar is the area discussed so well by Ober. Another condition which must not be overlooked, especially in pregnancy and menstruation, is the old and important sacro-iliac relaxation; the test for which can be found in Gaenslen's, Smith-Petersen's, and Nachlas' writings. I have made it a rule that a ruptured disc is not to be considered until all else has been ruled out. It seems to me that we are all too prone to throw everything into the scrap basket labeled "disc." Diagnosis is too difficult, or we are too lazy to figure it out. By doing it the way I have suggested, there will be less trouble deciding when a "disc" is not really a disc.

*Postural backache.* Postural backache can arise from a number of diverse conditions and produce as many diverse symptoms and a whole series of conditions may produce identical symptoms.

Intercostal neuralgia can produce symptoms over a large area. Poor posture produced by a short leg, or a rotated pelvis, or a curvature of the spine, causes irritation of the nerves as they leave the spine and the patient experiences pain through the nerve distributions. The classic example of this is false appendicitis. Pain and signs of discomfort on pressure are located in the right lower quadrant, but if the belly is voluntarily ballooned and the patient still has pain in the same area on pressure, it will be found that on pinching the skin it is extremely painful but not so on the other side. This is not true in appendicitis. I am equally certain that "intercostal neuralgia" of the lumbar spine causes some of the leg pain people complain of. This type of pain might even be part of the transverse process signs already discussed.

There are three main areas of discomfort in postural backache. There may be pain or merely slight discomfort. Perhaps the most important pain is that experienced beneath the scapula, though there is no tenderness noted. Sometimes people complain of pain in the lumbodorsal area, but there is no tenderness or limitation of motion. In truly bad posture, people complain of pain in the anterior chest where the coracoid process impinges on the chest wall. Kendall in Baltimore alleviates this with a corset designed to be snug enough below the midline to force the patient erect and hold him in that position so as to relieve pressure on the coracoid. In the other types mentioned a lift or a wedge on the inner border of both heel and sole under the offending iliac crest and exercises to correct the curve usually are enough. Exercises are deliberately not done to the muscles on the opposite side; this would accent the curve. Occasionally, heat and massage in some form is indicated. It must be understood that these backs are chronic conditions and have been long in developing difficulties. For those reasons only considerable patience and continued treatment will effect a cure.

Some doctors say that a short leg does not mean a thing so far as pain and discomfort are concerned. Some even go so far as not to measure for leg length in the ordinary examination. All I can say is that I know attention to unequal leg length from ¼-inch or more is extremely important and at times correction of this alone has brought a termination of symptoms. One day in England during World War II, a G.I. from one of the neighboring camps came in to our dispensary complaining that he could not keep up with his outfit on training hikes. In England these hikes were done on asphalt roads which were very hard. He said that he had been to several sick calls because of pain in his back and had been labeled a "goldbrick," but he was still determined to get medical help. On examination his right leg was ⅜-inch short. I gave him a prescription for a lift and within five days the invasion was on. Two weeks later, I received a very grateful letter from that boy who was now in France. He thanked me for making him normal again. Don't tell me lifts don't work!

Occasionally, a patient will be seen stating he has suddenly within the hour experienced so much pain in his back that he cannot stand it. Place him on a block with the proper amount of correction under the low side and talk to him about anything for five minutes and then ask him how he is, and occasionally now, he will say the pain is gone. I then give him a lift under the heel of his shoe and also have him do some physical therapy.

To recapitulate, all kinds of people are seen with all kinds of back trouble. Some are bent way out of position, and some are straight but full of pain. Try the knee-chest position to see if this will be of some relief. (Occasionally, it is impossible for the patient to be put in the knee-chest position so don't force it.) Then give him a lift or wedge as indicated and have him do some physical therapy at home. Although these patients have pain and their activities are limited, they can still work if they are not laborers. One of the best ways to apply heat is by having the back ironed with a hot iron (not a steam iron). The patient kneels on the floor and puts his chest on a chair. Three thicknesses of blanket are placed on his back and he is ironed with a hot iron, up, down and crosswise. Eight minutes once a day is enough. Sometimes hot packs are indicated. If he is somewhat worse, he may have to go to a physical therapist who should be instructed to give ultra-sound and massage each for twenty minutes, three times a week. Daily therapy is too much; the patient requires more time than 24 hours to recover from his treatment. Under these regimens the patient begins to respond in about ten days and after two weeks can stop the ironing or cut his treatment to twice a week and then to one time a week. After a month he should return for further evaluation, but have him keep in touch weekly by phone. In this way you keep a tab on your patient which he appreciates. After this regimen it is sometimes necessary to start exercises. These may be general postural exercises or specific for the part involved. When there is a list of the pelvis but no leg shortening, there may be a short heel cord causing pronation. Naturally, heel cord stretching is then in order. This can be taught in the office as easily as anywhere. The patient stands with feet about two feet from a desk with his toes straight ahead and places his hands, palms down, on the edge of the desk. He straightens his knees and then bends forward at the ankles with his knees still straight. There will be pain in the calves after he has bent forward. He holds position for ten seconds (counting 1-one thousand 2-one thousand, etc., up to 10-one thousand so that a whole second elapses at each count). Repeat the process eight times, twice a day. In two weeks there will be improvement.

Exercises should not be started until the back is sufficiently well so that the patient can perform them without discomfort. The area of spasm in the erector groups can usually be detected by palpation of a fusiform tender area. It can be relieved by Novocaine injection or physical therapy. Tenderness in the spinous processes is not an uncommon finding and, with x-ray help, impingement of two spinous processes can be diagnosed. Occasionally pain is sufficiently severe so that removal of the impinged area is indicated. The entire pelvic girdle should be palpated for tender areas, especially if symptoms suggest the need. The pelvis all the way around is loaded with muscle insertions. Often one portion of an insertion is pulled or damaged and an exostosis starts to form. Oftentimes, a little Novocaine will take care of the discomfort, but at times exploration will be necessary and will reveal a small exostosis with granulation tissue which is sufficiently inflamed to cause the discomfort. Another region that can frequently be involved and blur the picture of back and buttock difficulties is the ischial area. Ischial bursitis is a very important entity and must be included.

There are, of course, many unstable low backs and each case must be individually evaluated. Spondylolisthesis is an example. Many and many a person who has it never has any symptoms or discomfort. If the x-rays reveal a molding up of calcium beneath the protruded vertebra, the chances are the patient has repaired his own back better than we could and will thus require neither surgery nor even a brace. A certain number of patients will come to operation. I believe that removing the lamina is as necessary for relief of painful symptoms as lateral fusion is for instability. Sacralization of vertebrae must also be individually evaluated. Is it or isn't it the cause of this patient's symptoms?

Sometimes a diagnosis walks right up and presents itself. I recall one very close friend who had had lots of trouble with her foot. She was in her forties and always had had difficulty. She had had her third toe amputated much earlier, had soft corns, contracted toes, and calluses; walking was difficult. Some time later she had a flat plate x-ray of her abdomen done and I saw it. She had a perfectly beautiful (if that is the word) diastematomyelia—just enough trouble to cause mild trophic disturbances.

*Non-suppurative osteomyelitis of the spine* is of importance because of the importance of making the diagnosis and the surprisingly easy way of treatment. These patients usually present themselves to the hospital because they have so much intractable pain that they cannot be treated at home. They lie in bed literally waiting for a spasm of pain which is extremely severe and which the patient cannot localize except to say that it is in his back. The patient is prostrated and does not move for fear of setting off an attack. Even with palpation it is difficult to pinpoint the area of involvement. X-rays are important and should be obtained as soon as possible because changes occur rapidly. Everyone of the half-dozen patients I have seen has had a prodromal bout of infection somewhere—cystitis, pyelonephritis, osteomyelitis elsewhere. X-rays show a complete loss of the vertebral plate of one of the vertebrae. The other side of the disc base may look perfectly normal. Within two weeks repair is begun and calcium begins to appear in the surrounding soft tissue wherever the shattered border went. Later there is consolidation, narrowing of the interspace, and in six-to-eight weeks bridging of the interspace with bone. If these patients are placed in a slightly hyperextended plaster jacket, they will experience complete relief of their pain and spasm. In six weeks they will be ready for a brace and rehabilitation. Surprisingly, there is no need for fusion; in healing, the patient has done a beautiful job for himself.

*Apophyseal arthritis* is a different condition and requires a thorough-going approach to determine the best method of treatment. In general if the condition is not advanced and is not a Strumpel-Marie or Von Becktereu type, a simple course of mild catharsis (sodium sulphate) and a low-carbohydrate diet will often do wonders. Bracing and cast treatment are also indicated in some cases.

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*Part III will appear in next month's issue.*

# CARE OF CARDIAC PATIENTS UNDERGOING SURGERY

**• Patients with heart disease can undergo surgery with acceptable mortality rates, but attention to details in their care is especially important. This paper discusses the important points.**

David M. Sensenig, M.D.

Whenever major surgery is contemplated, the benefits of the proposed operation should be weighed against the risks involved. In young, healthy individuals, the danger of a major operation is low. With advancing age and its accompanying infirmities, the risk increases. Some patients are in such obviously poor condition that only surgery necessary to prevent imminent death would be considered. The most important abnormalities affecting operative mortality are diseases of the heart, lungs, kidneys, and at times diseases of the liver and hematopoietic system. The most common problems arise in these patients who are suffering from heart disease in one form or another. This paper is concerned with the evaluation and management of such patients who are candidates for operation.

### History

The initial and most fruitful approach to the problem is a detailed history. If only one of the three parts of patient evaluation (namely, history, physical examination, or laboratory study) were available, the history would be the most helpful. In taking the history, an accurate description of exercise tolerance is important. Can the patient walk up two flights of stairs without stopping? How far can he walk on the level? When he must stop, is it because of chest pain, pain in the legs, or dyspnea? A patient who can walk up two flights of stairs without stopping is probably a satisfactory risk for abdominal surgery even though such ability does not rule out an important degree of pulmonary emphysema. While the heart may be enlarged and murmurs may be audible, it is the capacity of the heart as a pump which is important. Is there enough cardiac reserve to tide the patient over the operation and any accompanying complications which may develop such as retained secretions, atelectasis or some degree of pneumonia? Does the patient with cholelithiasis have pain, either thoracic or abdominal? Is the pain due to biliary tract disease or does he have pain as a result of coronary artery insufficiency? Has there been a documented heart attack in the past? (Elective surgery would ordinarily be deferred for three months following a coronary artery occlusion.) Has the patient noticed any paroxysmal nocturnal dyspnea? Is there ankle edema present at the end of the day? If so, is such edema unilateral or bilateral? Bilateral edema suggests cardiac disease or hypoproteinemia; unilateral edema makes present or past thrombophlebitis more likely. Has the patient noticed any palpitation or had any previous episodes of irregular pulse? An occasional patient will be prone to attacks of paroxysmal arrhythmia. Knowledge of these would be helpful in planning the management of the patient. Has the patient ever had digitalis or any of the cardiac glycosides in the

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past? If so, why was it prescribed? These questions are at times difficult to answer but are important in the evaluation of a patient as a surgical risk.

In taking any history it is wise also to interrogate the spouse or other responsible member of the family. This may be obvious if the patient is patently too infirm, comatose, or otherwise mentally incompetent to give a history. But even if the patient is mentally clear and intelligent, it is wise to confer with other members of the family because important facts may slip the mind of the patient. He may withhold information because he thinks it may influence the physician to take a course of action which the patient does not desire. Patients may not appreciate the importance of an accurate history, and may attempt to slough off the questions if they are feeling poorly and don't want to be bothered; better cooperation may be achieved from his relatives.

A complete systems review and past history must be obtained. Past history of pleurisy or hemoptysis may be the clue that the patient has a thrombophlebitic propensity. Proper anticoagulant therapy may ward off a pulmonary embolus and even a small one may be fatal in a patient who has very little cardiac reserve. A history of rheumatic fever is important but a definite history is not obtainable in about forty percent of cases of rheumatic heart disease. The presence of a murmur since birth favors a congenital abnormality. Antibiotic prophylaxis against subacute bacterial endocarditis may be indicated in both types of patients.

The importance of the history dictates that the physician must allow adequate time to elicit it. The demands of a busy surgical practice do not excuse an inadequate history.

### Physical Examination

The physical examination must be thorough. It can be quickly and efficiently performed but should not overlook important points. Examination of the eyegrounds is frequently omitted; yet such an examination may reveal much about the patient's vascular status. By raising and lowering the arms, the examiner can obtain a rough idea about the peripheral venous pressure. An attempt should be made to elicit the hepatojuglar reflex. In the cardiac patient it is wise to determine the venous pressure by manometric measurement and determination of the arm to tongue circulation time using Decholin; both these determinations are easy to perform. In the cardiac patient, as in any other patient, signs of thyrotoxicosis should be searched for. These signs include a palpable thyroid gland enlargement, a bruit over the thyroid gland, the various eye signs of thyrotoxicosis, as well as tremor and warm, moist palms. In the elderly the only sign of thyrotoxicosis may be atrial fibrillation. Protein-bound-iodine determination or serum thyroxine determinations are especially helpful in this situation.

Examination of the heart includes a careful determination of the blood pressure. At times, inexperienced attendants may mistake a high diastolic pressure for the systolic pressure, and report a grossly inaccurate low blood pressure. While percussion of the heart border can be a very inaccurate guide to cardiac size, an increased activity of the heart along the left sternal border or an increased apical thrust may be respectively indicative of right or left ventricular overactivity. Careful notation of systolic and diastolic thrills and murmurs should be made in determining what valves are involved in rheumatic heart disease or what defects are most likely in congenital heart disease.

In the examination of the lungs one seeks the signs of pleural fluid. The intensity of breath sounds generally throughout the chest is an important guide to the presence or absence of obstructive pulmonary emphysema. Asthmatic breathing with prolonged expiration may be on a cardiac basis and may indicate incipient pulmonary edema.

Abdominal examination should include a notation of any palpable enlargement of the liver or spleen and the presence of ascites, as manifested by a fluid wave or shifting dullness. Pain and tenderness in the right upper quadrant may result from stretching of the liver capsule as a result of cardiac decompensation with passive hepatic congestion rather than from an intra-abdominal inflammatory process. Ascites may result from cardiac decompensation or chronic constrictive pericarditis rather than from cirrhosis of the liver. Careful pelvic and rectal examinations are required in any complete physical examination.

The peripheral pulses should also be carefully examined. A bruit heard over the carotid arteries or over the abdomen suggests an arterial stenosis which may be responsible for a postoperative complication. A pre-operative notation about the presence or absence of foot pulses may be very helpful if peripheral vascular insufficiency develops in the postoperative period. The circumference of the calves should also be noted. The development of unilateral calf swelling may be an important sign of postoperative thrombophlebitis; without pre-operative measurements, one cannot be sure that postoperative unilateral increased circumference may not have been present for a long time. Pedal edema is commonly encountered in cases of hypo-albuminemia.

### Laboratory Studies

The indicated pre-operative laboratory studies will vary with the condition requiring operative treatment. In all cases urinalysis and complete blood count are indicated. Chest x-ray provides information about heart size as well as the presence of lung disease. An EKG in any patient over forty is a worthwhile determination. Even if normal, it serves as a baseline for any abnormalities noted postoperatively. It may be helpful in providing information regarding ventricular enlargement, electrolyte imbalance, or arrhythmia.

### Preoperative Corrections

Having obtained a detailed and accurate history, performed a careful physical examination and determined the important laboratory examinations, the surgeon should correct any important abnormalities as quickly as possible preoperatively. Preoperative anemia poses a difficult problem at times. If anemia can be corrected, the patient will be in better condition for the operation. The administration of packed cells will overload the circulation to a lesser extent than whole blood. Cardiac patients tolerate hemorrhage poorly so adequate blood must be on hand to replace losses.

An electrolyte disturbance must be recognized and corrected. Serum sodium, potassium, carbon dioxide, and chloride should be determined and abnormalities restored to normal prior to operation. Low serum potassium is to be avoided especially in the cardiac patient who may suffer from digitalis toxicity. Urinary output must be satisfactory before potassium is administered. When sodium chloride or bicarbonate solutions are given, the total body water is a better guide to the amounts required than extracellular fluid volume assuming that total body water is 50% of body weight. This serves as a practical basis for calculations that work out well in predicting the required amounts of fluid replacement. In severe deficiencies it is preferable to give one half the dose and repeat the chemistries rather than give the whole amount at once. Too rapid a diuresis induced by drugs may precipitate an electrolyte imbalance which must be corrected prior to operation.

### Digitalization

To digitalize or not is a frequent point of discussion. Often the surgeon wants the patient digitalized before operation, but some cardiologists recommend against this course unless it can be demonstrated that the patient is in actual failure. Failure may develop during the procedure and be difficult to recognize. Rapid digitalization is more dangerous than a more leisurely administration of the drug. Present evidence suggests that the output of the normal heart is not reduced by digitalization. The patient with an enlarged heart probably will benefit from digitalis which shortens myocardial fibers and increases the force of contraction. Therefore, digitalis may be helpful in preventing heart failure and should not be deleterious as long as excessive amounts are avoided and hypokalemia is corrected or avoided. Some physicians feel that the presence of extrasystoles is a contra-indication to the use of digitalis. On the contrary, premature ventricular contractions may disappear following the administration of digitalis. Look for the cause and treat any failure is our advice. While 1.5 mg can be considered the usual digitalizing dose of digitoxin, individual requirements may vary. It has been shown that some of the ionotropic effect is achieved with partial doses.

Cardiac arrhythmia such as paroxymal atrial tachycardia and fast atrial fibrillation are relatively common after thoracic operations, especially pneumonectomy.[1] Under anesthesia, the digitalized patient is not likely to develop a fast rate which may precipitate failure. I, personally, favor routine pre-operative digitalization in the patient over 60 years of age who is to undergo thoracic surgery.

Patients with heart block pose special problems. When heart block is present, digitalis is contra-indicated unless the rate is controlled. The best approach to the problem in the patient with complete heart block is to pass a stimulating electrode to contact the right ventricular musculature via a peripheral vein and then control the rate with a portable battery-driven pacemaker.

### Edematous States

The patient should not come to operation in an edematous state. The judicious use of diuretics whether Mercuhydrin, thiazides, or ethacrynic acid should bring the patient to surgery at "dry weight." Any electrolyte disturbances induced by diuretic therapy should be corrected prior to the operation.

### Bronchi and Lungs

The bronchi and lungs must be in the best possible condition. Removal of retained secretions may be enhanced by intermittent positive pressure breathing using one part Mucomyst to three parts water. (A more concentrated solution of Mucomyst or the use of Alevaire may gum the respirator.) It is wise to familiarize the patient with the use of the machine preoperatively so he is in good practice when intermittent positive pressure breathing (IPPB) is ordered postoperatively. Antibiotic therapy preoperatively is helpful in some patients who suffer from chronic bronchitis and bronchiectasis. In the latter situation bronchoscopy and postural drainage may be helpful in preparing the patient.

### Blood Loss

During the operation blood loss should be replaced as it occurs. In hypertensive patients with inelastic arteries minimal loss of blood may result in a fall of pressure which may have deleterious effects. The patient may develop a stroke, a coronary occlusion, or damage to the kidney tubules. The practice of weighing sponges and keeping accurate measurements of the fluid aspirated is valuable in estimating blood loss. Replacement of this loss may prevent serious difficulty in the elderly cardiac patient. Blood transfusion must be used with caution, but there are times when a single unit transfusion is justified.

Measurement of central venous pressure using a previously placed inlying venous catheter provides valuable information in estimating blood needs and in preventing overload of the circulation. Since the jugular system is valveless, this pressure can be measured by a catheter passed via the jugular vein into the superior vena cava. A rising central venous pressure, especially in excess of 15 cm of saline is an indication for withholding further blood unless additional hemorrhage occurs.

### ECG Monitoring

Interoperative electrocardiographic monitoring is valuable. Premature ventricular contractions, atrial arrhythmias, and other abnormalities may indicate the need for modifications of the surgical procedure or of the course of anesthesia.

### Postoperative Renal Function

Postoperatively an accurate account of intake and output must be kept to follow renal function. If dehydration is not present and the arterial blood pressure as well as the central venous pressure are normal, a urinary output less than 30 ml per hour may represent some tubular dysfunction as a result of hypotension during the procedure. If blood pressure falls to 80 mm of mercury or below during the operation, it is wise to administer 25 gm of mannitol intraveneously. The presence of an inlying bladder catheter is important to measure the response and prevent bladder distension. Likewise, the use of mannitol postoperatively may be an important help in flushing proteinacious debris from the tubules. One loading dose of 25 gm may be sufficient in correcting oliguria. If it recurs, additional doses of mannitol may be required as long as there is a positive response to the use of 12.5 gm or 25.0 gm intravenously. (A positive response is characterized by the doubling of hourly urinary output after administration of the drug.)

### Electrolyte Balance

Electrolyte balance must be maintained. Potassium chloride (40 to 60 mEq) may be given daily intravenously to avoid hypokalemia as soon as it is determined that urinary output is adequate. Larger amounts of potassium may be given depending on daily losses. Determinations of sodium, potassium, carbon dioxide content, and chloride done every three days should allow accurate intravenous therapy in those patients who should not take fluids by mouth. Low serum potassium may accentuate the toxic effects of digitalis preparations.

### Hypotension

Postoperative hypotension requires a diagnosis before effective treatment can be instituted. The most common cause is bleeding which may not be apparent despite the presence of drains. The response of the blood pressure and central venous pressure to 500 ml of whole blood may provide valuable information. Ausculation of the lungs with attention to the intensity of breath sounds, rales, or prolonged expiration may indicate incipient pulmonary edema. A good portable chest x-ray can provide even more information. Removal of retained secretions by endotraceal catheter suction or bronchoscopy where required will improve ventilation. IPPB is helpful, as outlined previously. Oxygen by nasal catheter or by tent at six liters per minute is indicated in many cardiac patients. Proper humidification of the oxygen and avoidance of drugs such as the antihistamines which thicken secretions are important. The determination of arterial blood gasses and pH may demonstrate the magnitude of the problem and the need for continuing administration of oxygen. Increased arterial blood $pCO_2$ may call for use of respirator assistance. It may be necessary to use a volume-cycled rather than pressure-controlled machine in order to assure adequate ventilation.

If hypotension is on a cardiac basis, the administration of more digitalis if required and the use of isoproterenol and diuretics may be necessary. Hypotension due to septicemia must be recognized and vigorously treated with intravenous fluids and appropriate antibiotics. The use of massive doses of steroids in septicemia has its advocates but remains controversial.

### Thromboplebitis

The cardiac patient has little reserve and cannot withstand a pulmonary embolus as well as a normal individual. The cardiac patient is also more prone to postoperative thrombophlebitis. Careful observation for calf swelling or tenderness, Homans' sign, or unilateral edema is important. Arthur Allen emphasized the sign of a fast pulse out of proportion to fever as an indication of phlebitis. If thrombophlebitis is suspected, anticoagulation is in order unless there are contraindications such as a large raw surface or a major degree of infection. In the latter instance small doses of heparin should be given often intravenously with careful observation of Lee-White coagulation times. In liver disease prothrombin depressants must be used with extreme caution if at all.

### Summary

With proper care of the heart, lungs, kidneys, blood volume, electrolyte balance, and avoidance of pulmonary embolism, the cardiac patient can be carried through major surgery safely. The cardiac's road to postoperative recovery may be a rocky one at times, but attention to details on the part of the surgeon and consulting physician should result in an entirely acceptable survival record, so that such patients need not be denied necessary operations, which may serve to improve the general health and lighten the load on the cardiac system so that a longer and more comfortable life is attained.

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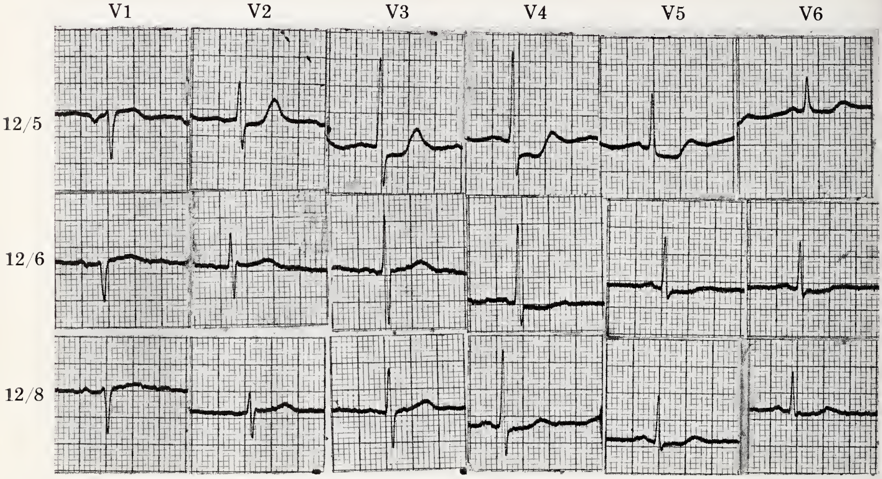
# PQRST

## INTERESTING ELECTROCARDIOGRAMS

Editor: A. Henry Clagett, Jr., M.D.



**Clinical Data:**

Male, age 78. Diagnosis: Angina. Blood Pressure 170/100 to 140/80. No digitalis.

**Reading:** (Chest leads only from three different days.)

Rate and rhythm within normal limits in all three tracings.
PR interval—normal
QRS complexes—normal; no Q waves; no evidence of hypertrophy.
ST segments—depressed from V-2 to V-6 in tracing of 12/5. This is a "horizontal" depression in contradistinction to the sagging depression (digitalis effect) and downward sloping depression (hypertrophy). It is most pronounced in lead V-4 where it reaches a maximum of 3 mm. In the tracing of 12/6 the segments have returned almost to the iso-electric line and the T waves are of lower voltage. In that of 12/8 they are iso-electric in all but lead V-4 and the T waves have become more normal.

*Interpretation appears on page* 363

# PSYCHIATRIC CARE VERSUS CORRECTIONAL CARE

• **Many authors in psychiatric and legal fields have written articles concerned with forensic psychiatry. This paper attempts to explain the confusion which still remains in specific cases with respect to psychiatric versus correctional care.**

Karnik Gurdikian, M.D.

There are two major types of sociopath. One type chooses a pattern of life by himself or through environment, seems pleased with this type of life, and doesn't care to change. This type usually plans his way of life; crime is, more or less, a business for him. The only time he is punished is when he is caught.

The sociopaths with whom we are concerned include sexual psychopaths, juvenile delinquents, suicidal and homicidal cases, borderline psychotic cases with strong sociopathy, alcohol and drug addicts, and those with irresistible impulses. Nowadays, modern psychiatrists and judges are concerned with questions of humanity and inhumanity. Because of different psychiatric approaches to inmates and the complexities of law, many criminals and psychiatric cases remain in correctional institutions and psychiatric hospitals for only a short period. When they leave, they are not prepared for any new way of life and have not received proper psychiatric care.

### Sexual Psychopaths

Some states have passed certain laws dealing with sexual psychopaths. These laws aim at protecting both the community and the sexual psychopath. Many of these laws concerned with sexual psychopaths are predicated on the supposition that these inmates or patients can be cured by proper treatment. Some psychiatrists feel these patients are psychopaths and need correctional treatment. We know that sexual psychopaths, because of their emotional problems are not able to refrain from acting out and may, in doing so, act in a dangerous way. Handling these cases is difficult. Different states handle these cases differently. In some states these people can be sent to a mental institution for treatment. In some, hospitalization is ordered for as long as the inmate has been sentenced by law and in others, hospitalization is ordered until the inmate has become harmless and cured. Some remand these cases to a correctional institute first with hospitalization or outpatient treatment starting after discharge from the institute. Either way, the good intention is sincere. But the question arises as to whether or not we are doing our best for these inmates or patients. We cannot ignore our responsibility and a prime concern should be for the safety of society. To me, it appears that none of these approaches are in fact being effective. The inmate does not actually receive adequate training or psychiatric treatment so a terrible danger of further sex crimes remains. Judges are concerned with achieving psychiatric treatment of these inmates but many psychiatrists feel nothing can be done for sexual psychopaths. There are different statistics of risk of sexual crimes; not only by non-psychotic sexual psychopaths but also by schizophrenics. They are confusing and vary extremely. These differences in statistics are due to manipulation of data,

*For Editorial Comments*
*See Page 367*

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Dr. Gurdikian is Assistant Clinical Director, Delaware State Hospital; Psychiatric Consultant, Department of Corrections, State of Delaware.

usually unintentional. This gives a wrong impression to many psychiatrists and judges. The pendulum of opinion concerning curability of these patients should not swing from one extreme to the other. A more sober midline approach is desirable. We are quite aware that this type of disease is a compulsion; a morbid urge to do things which the patient realizes are silly and irrational but cannot help doing. The question is: Are such people really psychopaths? Benjamin Karpman believes they are not. He feels many people called psychopaths are actually neurotics, borderline psychotics, schizophrenics, or belong in still other groups. The diagnosis of sexual sociopathy is usually merely an admission of the psychiatrist's inability to understand the psychic processes.[1,2]

### Juvenile Delinquents

Juvenile delinquency has increased considerably in the past 30 years. In our review of the literature, we found many different views on juvenile delinquents. We feel a weak inherited constitution and an unfavorable environment work together. Formerly where restricting discipline prevailed, there was less delinquency; however, in the last 30 or 40 years the tendency to restrictive discipline has decreased. It is often difficult to differentiate hereditary from environmental influences because parents are responsible for both of these factors.

There is certainly a group of human beings who have a defect in the development of morals and ethics. Some psychiatrists feel this defect can be changed if treatment starts early. Others feel that these people have an inborn defect inherited in most cases, analogous to the mental defective's defect in the sphere of intellect. On examining these patients, we find evidence indicating that they are emotionally and psychologically unstable but usually we do not find any evidence of insanity.

### Suicide and Homicide

Sociopathy is often associated with sadomasochism and should therefore not be ignored because of suicide attempts or homocide. Suicide attempts are more common in unstable, emotionally immature and distraught individuals than in those suffering from psychotic depression. This group includes alcoholics, addicts, and some sexual psychopaths, as well as borderline psychotic cases with strong sociopathy. In many cases, it is clear that the entire life pattern has been characterized by emotional instability with impulsive, hysterical, poorly motivated acts of the type usually seen in neurotic and some sociopathic individuals rather than in those with deep depression or schizophrenia. Because of their impulsive character, the prevention of suicide at times is a very difficult problem. There is often less awareness of this danger in the sociopathic individual or in the alcoholic with transient depressive periods but these episodes occur in jail with sufficient frequency to indicate the need for alertness to this problem and careful psychiatric evaluation and treatment. The ability to direct their own lives and to assume responsibility for themselves has become lost or impaired. These people have a tremendous self-hate and self-frustration and are therefore prone to self-destruction.

The dynamics of sociopathy with associated suicide and homicide are better understood if we know the patient's background, early development, traumatic events that he was exposed to, degree of paternal interest, and relationship between parent and child. Many investigators have shown that family disorganization with concomitant emotional deprivation in the formative years gives rise to a host of problems which take different forms such as delinquency, sociopathy, and mental illness. In our studies of homicidal and suicidal cases, we always find conscious anger and resentment, retaliation and revenge. Many investigators have studied this problem in relation to various behavior phenomena and psychodynamic factors. Meninger suggests that homicidal behavior might be a kind of episodic discontrol which functions as a regulatory device to forestall more extensive personality disintegration. These people have never been successful and feel inadequate, isolated, inferior, and apart from other people. In their background we usually find broken homes or troubled homes where tremendous hostility among family members was present. When such persons are examined and psychotic behavior accompanied by delusions and hallucinations is found, there is no diagnostic problem for the psychiatrist.[3] But when suicidals or homicidals seem coherent and relevant and there is no evidence of gross psychotic behavior or symptomatology, a problem in diagnosis is created and psychiatrists' reports may be contradictory. Suicide and homicide by automobile may be more frequent than we know. Careful analysis of these cases could show anti-social attitudes, destructiveness, impulsivity and marital irresponsibility. Alcohol often precipitates acting-out behavior, thus permitting the overt expression of self-destructive and agressive impulses.

### Borderline Psychotic Cases with Strong Sociopthy

Borderline psychotic cases with strong sociopathy create diagnostic problems. Because of different views and diagnoses, these inmates or patients remain in the correctional institution with minor, moderate or severe charges. These cases actually require extensive study and clinical conference. The psychiatrist treating such cases has a responsibility to watch for danger signs of suicide and homicide. Usually these cases are depressed, withdrawn, and show signs of thought disorganization. It is not rare to find borderline psychotic cases or schizophrenics who can give correct responses about many matters, but who fail to behave normally or evaluate themselves objectively.

### Alcohol and Drug Addicts

Attitudes towards alcoholism and drug addiction differ from one locality to another. The position of different psychiatrists and judges toward this problem also differs. In a great many instances alcoholics and drug addicts with severe or moderate emotional problems wind up in correctional institutions because general hospitals or mental institutions refuse to accept them. Fenichel considers alcoholism as an "impulse disorder which manifests itself as an intolerance of tension or as the inability to postpone immediate reaction. The reasons for reverting to alcohol are either the existence of external frustrations (that is, states of misery one would like to forget and to replace by pleasurable fantasies) or internal inhibitions, among which depressive inclinations are of the greatest importance."[4] Fenichel's studies and others give the impression that anxiety, depression, and impulsivity are important factors in the pathogenesis of chronic alcoholism and drug addiction.

Alcoholic intoxication is no legal defense in case of a crime committed while under the influence of the intoxicant, except if the offender was made drunk against his will or by force. Courts hold that the alcoholic is not mentally ill. However, in case of alcoholic psychosis rather than simple intoxication, most courts will exculpate the defendent on the theory that his insanity was not a natural result of the drinking, but rather an unusual result of the drinking and, in any event, the defendant did not willfully acquire that particular mental state or expect it to occur. Though due to alcohol, the courts accept this condition as insanity.

### Irresistible Impulses

Another problem exists concerning irresistible impulse. Some psychiatrists reject the concept of irresistible impulse claiming that no such thing exists and that if it ever had existed, it would be impossible to prove. If it was admitted as a legal defense, it would become a threat to society as it would provide a loophole for criminals. It is always possible to repress an impulse, removing the threat of punishment will merely facilitate the act or intensify the temptation. However, it has been noted for years that impulsive behavior may become compulsive after an exciting factor has released the emotions. There is the possibility that this is the behavior described legally as the irresistible impulse, an acting-out behavior beyond the ability of the individual to control. It is also possible that disorganized thalamic, hypothalamic and possibly amygdoloid impulses may be released by a trigger-like stimulus and acted out without cortical control.

### Discussion

All the above-mentioned pathological personalities are persons whose problems are caused by constitutional defect or emotional conflict of childhood and youth. Healthy discipline was not administered by parents; discipline and reward, important for socially accepted behavior, were lacking. They continue to seek an emotional expression or outlet to their conflicts. Some feel prison environment is a handicap to therapy in this group. Both judges and psychiatrists realize that these individuals need treatment. However, the unacceptable sociopathic behavior makes it difficult to decide where the patient belongs; in a correctional institution or a mental institution. It can be argued whether individuals presenting these problems have a type of mental illness or not. The compulsion of the exhibitionist or voyeur to return to the scene of his crime is the manifest symptom of his deep sense of guilt and need to be punished. We know that the large majority of addicts is forced into social deterioration because of the high cost of narcotics. Addicts must steal, prostitute or peddle drugs to support their own habit. Social and psychological factors produce this type of criminality. These people may not have been psychotic when they did not take drugs; however, while taking drugs they are classified as an inadequate personality with character disorder and all varieties of neurosis.

We cannot ignore extreme forms of sadomasochism which present a danger to society. It appears necessary to isolate dangerous sexual psychopaths either in a correctional institution or a mental institution in order to study them carefully and be sure that when they are released, the same pattern of behavior will not be repeated. We are aware that this type of patient does not seek treatment unless he is forced to do so. This force may be important and psychiatrists should therefore not lose patience in treating such patients.

## Conclusion

This short review indicates important areas of psychiatry and law which are controversial. The diagnosis of sexual psychopaths, addicts, borderline psychotic cases, suicidal and homicidal persons with strong sociopathy, and some delinquents needs reinvestigation and research. Psychiatric treatment relating to inpatient and outpatient programs, probation and parole also need more research. Perhaps the laws should be changed so that a more equal, or shall I say stable, harmony can be found with the psychiatrist. Let us not argue where the patient should be incarcerated. In reality as long as he does not have his freedom, it does not make any difference where he remains, whether in a mental institution or a correctional institution. However, if he remains at the correctional institution, proper psychiatric care should be given. The criminal with psychiatric problems while incarcerated either in a correctional or mental institution should have vocational training and should be prepared for his return to open society. A free program must include the teaching of morals, discipline, and respect, as well as proper psychiatric treatment and educational vocational training. It is the responsibility of the psychiatrist and the court to continue institutionalization as long as treatment and correction is required. If we combine our efforts and look at the problem seriously and realistically, we may accomplish much towards solving some of the problems from which society is suffering today.

## Summary

1. Whether the above-mentioned problems are caused by constitutional cerebral defect or early environmental stress, they are the responsibility of the psychiatrist to treat. We are aware that these problems are not easy to treat; however, many heredo-degenerative central nervous system diseases are not curable but we do not refuse continued treatment.

2. There are many differences of opinion among psychiatrists and psychologists concerning the above-mentioned cases with respect to diagnosis, etiology, pathogenesis, prognosis and treatment. This does not mean the problems are mainly correctional and not psychiatric.

3. Extensive study, research, social, and rehabilitative programs are required for per-

sons with these diagnoses.

4. To release mentally ill patients who need further treatment and hospitalization from correctional institutions or mental institutions creates problems for society and for the patient. These patients or inmates should remain in the institutions as long as is required for care and treatment. After release, close supervision and proper care should be continued.

5. The proper emphasis should not be on the reduction in the number of occupied or available beds in either correctional or state institutions. Increased emphasis should be placed on attitudes of communities and patient's families toward individuals who need help, different diagnostic practices, and the policies and treatment programs of the correctional and mental institutions.

6. Many state institutions' patients and correctional institutions' inmates receive inadequate treatment because of a lack of therapists and therapeutic programs. The state of Delaware has fewer problems than many other states because of its size and population; however, this does not mean that we are giving adequate care and treatment.

7. This problem should be brought continuously to the attention of the public, responsible departments, organizations, and state officials who provide funds for adequate care and treatment for the inmates or patients in correctional and state institutions.

8. The social, correctional and psychiatric problems should be viewed together and there should be one joint approach to the problem. Working separately with inadequate staff and personnel as has been previously done does not permit the claim that nothing can be done for these people.

9. Crime is a social problem and should be treated as such. This does not mean that the inmates' or patients' problems should be ignored and not given proper medical treatment. Society has moral obligations to treat emotionally or mentally ill inmates properly.

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2. Karpman, Benjamin: Criminal Psychodynamics — a Platform. Archives of Criminal Psychodynamics, Vol. 1, 1955.
3. Saten, J.; Menninger, K.; Rosen, I.; and Mayman, M.: Murder without apparent motive. Amer. J. of Psychiatry, July 1960.
4. Fenichel, O.: The Psychoanalytic Theory of Neurosis, W. W. Norton & Co., Inc., N.Y., 1945; pp. 367-381.

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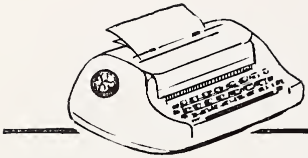
## INTERPRETATION — Interesting Electrocardiograms (Page 358)

This is a beautiful example of the changes seen during angina (coronary insufficiency). With some residual changes remaining on 12/6 but practically normal on 12/8 it suggests that there may have been some prolonged ischemia. No evidence of infarction.

The changes seen in the tracing of 12/5 would be a definitely positive response to exercise in a patient undergoing a stress or exercise test.

In elderly patients, anemia should always be looked for as a possible precipitating factor in tracings of this type.



# Special Reports

## ASSOCIATED CLINICAL SOCIETIES

### Atlantic City, New Jersey, May 3-8, 1968

George R. Fisher, M.D.

Eighty-one years ago William Osler founded the Association of American Physicians to meet the first Tuesday in May. After twenty-one years, the society became a little stuffy and a group of "young Turks" broke loose to form the Society for Clinical Investigation to meet on the Monday before the first Tuesday. Arteriosclerosis again set in after thirty years and a group of "young squirts" then formed the American Federation for Clinical Research to meet the Sunday, before the Monday, before the first Tuesday. And, the Society for Pediatric Research now meets the Friday and Saturday before the Sunday.

These spring clinical meetings in Atlantic City are attended by about three thousand academic physicians. The papers are of uneven quality, and as a generalization it can be said that one must sit through two dull papers to hear one exciting one. This year there were 427 papers presented, but because of concurrent meetings it was possibly for one individual to attend only 199 of them. So, for all the time, trouble and expense that it takes to go to the meeting, one can hear about 65 excellent papers. What follows is a summary of a few of those 65.

My own prize for the best paper goes to Dr. Cotzias and his colleagues from Brookhaven, who showed color movies of cases of Parkinsonism which were dramatically improved by taking L-DOPA. The rationale is unclear but has to do with the pigmentation of the substantia nigra. The applause after this paper sounded as though Babe Ruth had hit a home run with the bases loaded.

A group working in Toronto have perfected a method of assaying substances by measuring the amount of displaced radioactivity when serum is incubated with tagged molecules which have previously been attached to carrier proteins. This method seems to make it simple to measure testosterone, thyroxin, estrodiol and (presumably) any other circulating non-protein hormone. In the same area, an excellent method for measuring gastrin was described, making the diagnosis of Zollinger-Ellsen syndrome simple.

It was of interest to see electron microscopic pictures of liver cells microsomes; they proliferate visibly after the administration of alcohol. Presumably the microsomes are the site of detoxification of alcohol and this is the explanation for the increasing tolerance of alcoholics for more alcohol.

A new cytomegalic inclusion-body illness has been described following transfusions with fresh heparinized blood. It resembles mononucleosis clinically. (Come to think of it, it is remarkable that so few diseases are transmitted by transfusions.)

It would seem that some susceptible individuals develop a profound calciuria after eating carbohydrate. It is conjectured that these people may be stone-formers. Along the same line, a paper demonstrated that the administration of potassium is an excellent way of alkalinizing the urine. That may be therapeutically of benefit in salicylate poisoning, and it may be another dietary source of stones.

In renal dialysis, the use of oil in the bath instead of aqueous solutions will dramatically increase the dialysis of barbituates. This rather messy method seems to be the thing for the treatment of some poisonings, particularly Doriden.

Intractable pruritis can be a symptom of uremia, and it persists after renal transplantation or chronic dialysis. Several speakers found the pruritis to be cured by parathyroidectomy and, therefore, probably due to ectopic deposition of calcium phosphate in the skin. A pronounced lipidemia associated with uremia was described by another speaker.

One author presented convincing evidence that patients with sarcoidosis lack transfer capability in their leukocytes and for this reason have negative skin tests to tuberculin and other antigens.

Some volunteers who ate themselves into experimental obesity developed many of the features of natural obesity (morning anorexia, diabetes, hypercholesterolemia, dyspnea, lethargy) but did not increase the number of their fat cells. Their obesity was a result of increased size of fat cells, while naturally obese persons have a larger number than normals of smaller fat cells.

A safari to Africa revealed that the pygmy is a pygmy because although he makes a normal amount, his tissues cannot respond to growth hormone. It would seem that this is a different condition from primordial dwarfism; we should now call a midget a midget only if he fails to produce the hormone.

*What We Need to Know about Myocardial Infarction* was a symposium held by the American Federation for Clinical Research. Several participants in the program made the following gloomy points about our present understanding of the most common cause of death in America.

1. The known causative factors (cigarettes, cholesterol, diabetes, hypertension) explain only about 35% of myocardial infarction. There is nothing untrue about present hypotheses; they are merely inadequate.

2. Sixty-five percent of deaths from coronary artery disease occur before the patient can be brought to the hospital.

3. Once inside the hospital, the great majority of patients who die will do so in the first 48 hours. During this time, enzymes are unreported, serial EKG's have not been evaluated, and the diagnosis is often insecure.

4. Two-thirds of cases of myocardial infarction die of muscular pump inadequacy, or intractable heart failure. There have been no recent improvements in the therapy of these complications.

5. To put these pessimistic statements in a slightly different context: Well-equipped and well-staffed coronary care units can expect to reduce the overall mortality from the disease by only 5%. Maintaining flying ambulance squads could reduce the mortality by only another 1% through rescue of all those who now die on the way to the hospital.

6. There might conceivably be some prospect of improving the mortality rate by anticipating coronary occlusions. At least, it seems to be true that 20% of patients who die of myocardial infarction had visited a doctor during the week before their attack. However, it is doubtful that many conservative physicians would follow Bernard Lown's pied-piping on the subject. He appeared to be advocating the widespread administration of xylocaine to everyone with chest pain before any diagnosis had been arrived at; the reason being that xylocaine would protect most patients who are about to develop ventricular fibrillation which is the presumptive mechanism of sudden death.

All in all, it was a pretty interesting week in Atlantic City. One cannot help wishing, however, that they would hold trial heats for the 199 papers, so that the audience need only attend the semi-finals.

### AFTER THE ORGY

In patrician Rome, tickling the uvula with a peacock's feather was a sophisticated way to induce vomiting.

# President's Page

## NEW COMMITTEE CHAIRMEN

There are a number of projects started by our former President, Dr. Dan Preston, which I would like to see brought to a successful conclusion this year. (a) I hope we can eliminate the coroner system in Delaware. (b) I hope to see the implementation of the proposed effort of the Wilmington Medical Center, the University of Delaware, and Jefferson Medical College by September, 1969. (c) I hope our members will become increasingly aware and knowledgable about the government medical programs and will be willing to take an active part if called upon. (d) I hope the pilot program for a formulary can be launched successfully this year.

It is also my desire that the Society members be informed of the Committee Chairmen for the year 1968-1969 so that if a problem arises, they can contact the appropriate committee chairman or the Society office.

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|---|---|
| Budget | Lawrence Katzenstein, M.D. |
| Program | H. Thomas McGuire, M.D. |
| Publications | Robert B. Flinn, M.D. |
| Public Laws | Allston J. Morris, M.D. |
| Advisory to Woman's Auxiliary | Richard Weiss, M.D. |
| Aging | Allston J. Morris, M.D. |
| AMA-ERF | William D. Shellenberger, M.D. |
| Education | William H. Duncan, M.D. |
| Federal Medical Programs | Leonard Lang, M.D. |
| Formulary Advisory | Ward W. Briggs, M.D. |
| Grievance Board | Albert Gelb, M.D. |
| Maternal Mortality | William D. Johnson, M.D. |
| Medical Economics | Davis G. Durham, M.D. |
| Medical Scholarships | Gordon Keppel, M.D. |
| Medical School for Delaware | C. Anthony D'Alonzo, M.D.<br>James E. Marvil, M.D.<br>Co-Chairmen |
| Medical Service and Public Relations | John Gehret, M.D. |
| Medico-Legal Affairs | James T. Metzger, M.D. |
| Mental Health, Alcoholism, and Drug Dependence | H. Thomas McGuire, M.D. |
| Prepayment | R. Douglas Sanders, M.D.<br>Chairman<br>Herbert M. Baganz, M.D.<br>Vice-Chairman |
| Medical Review | R. Douglas Sanders, M.D. |
| Religion and Medicine | Richard Taylor, M.D. |
| School Health | Edward F. Gliwa, M.D. |
| Rehabilitation | Martin Pennington, M.D. |
| Veneral Disease | L. William Ferris, M.D. |

Liaison, Child Diagnostic and Development Center — Henry Stroud, M.D.
Liaison, Delaware Chapter, American Cancer Society — Oscar N. Stern, M.D.
Liaison, Delaware Chapter, American Heart Association—Alfred E. Bacon, Jr., M.D.
Liaison, Delaware Nurses' Association — Henry Stroud, M.D.
Liaison, Delaware Pharmaceutical Society, Inc. — Harry Taylor, M.D.
Liaison, Delaware Association of Medical Assistants — Bayard R. Vincent, M.D.
Liaison, Delaware Tuberculosis and Health Society — James M. Hofford, M.D.
Liaison, Mental Health Association of Delaware — H. Thomas McGuire, M.D.
Member, Interagency Council on Smoking and Health — James M. Hofford, M.D.

Charles M. Moyer

# Editorials

## THE PSYCHOPATH

The treatment and responsibility to the psychotic patient in Delaware is clearly the province of the Department of Mental Health. The incarceration and rehabilitation of many criminals is clearly the province of the Department of Corrections. The critical problem and the patients mentioned in Dr. Gurdikian's article make up the large gray area in between. Who is responsible for these patients? Which Department should provide the program and personnel?

Who in Delaware assumes the responsibility to the alcoholic, the drug addict, the sexual deviate, the chronic criminal with an IQ of 65, the schizoid, and the sociopath? This large heterogenous group presents the biggest police and public safety problem in our State. This group constantly frustrates the police department, the courts, and the departments of mental health and corrections.

Previously the Department of Mental Health has felt no responsibility to this group of patients. It has concerned itself in the past only with the psychotic patient. If a patient sent to the Department of Mental Health was not psychotic he was promptly discharged or sent to prison.

The psychiatric staff at the Department of Correction needs assistance to treat, study, and rehabilitate this group of patients. The "New Look" of the Department of Mental Health gives every indication that it will assume some responsibility and give leadership in this vital area. Rev. James Hughes and Dr. Albert Ingram feel a responsibility to all the emotionally ill patients in our State, not just those psychotic. I feel they will effect major changes in these areas.

Dr. Gurdikian's article shows concern and understanding of this problem. He has had long experience in this area of the mentally ill offender. His article points out the problem and makes recommendations. I feel the new leadership in the Department of Mental Health will be interested in Dr. Gurdikian's ideas. The people of Delaware, the mentally ill offender and his family, and his victims will all benefit.

William J. Vandervort, M.D.

## THE HARLOT CELL

Red is the color of sin, blood, wine, and also of lipid laden macrophages. When Dr. James Hofford first presented his case of lipid pneumonia, the scarlet color of the telltale fat globules inspired Dr. John Egan to suggest that the name "harlot cell' would be appropriate and briefer. Dr. Egan is a red expert of sorts, involved as he is with "the cherry red river that runs our mill" (a descriptive poetic phrase authored by Christopher Fry, the English poet-playwrite).

We're delighted that through the generosity of the Delaware Tuberculosis and Health Society which has underwritten the effort in American green, we are able to bring to you the colored photo of the "harlot cell" which appears in this issue with Dr. Hofford's article.

## PROSTHETOGENIC MASTITIS: A NEW OCCUPATIONAL DISEASE

What do the following have in common?

Paraffin wax, beeswax, silicone wax, silicone fluid, shellac, shredded oiled-silk fabric, silk tangle, glazier's putty, spun glass, epoxy resin, polythylene.

They have all been used as injectors or implants to enlarge breasts. But recent report in the B.M.J. warns of disfiguring mastitis following the most commonly used (silicone fluid and polyethylene) and several cases of breast cancer associated with implants have also been recently reported.

Two of the British cases were topless waitresses who presumably are now entitled to full unemployment compensation.

# Delaware Academy of General Practice

## 1968 ANNUAL SCIENTIFIC ASSEMBLY

The Delaware Chapter of the American Academy of General Practice will hold its Seventeenth Annual Scientific Assembly on Saturday, November 30th. We extend a warm welcome to all of you to attend.

The income from our grantors and from the leasing of exhibit space helps to make it possible for the DAGP to present its excellent Annual Scientific Assembly without a registration fee. We urge you to make a special effort to visit each booth to personally express appreciation and to ask questions.

### Program

A. M.

8:45 — 9:25 Registration — Visit Exhibits
Moderator, Marjorie Jane McKusick, M.D.
*Director, Adolescent Clinic, Wilmington Medical Center*

9:25 President's Welcome — Maurice Goleburn, M.D.

9:30 "Gynecologic Problems in Adolescence"
Elsie R. Carrington, M.D.
*Professor and Chairman, Department of Obstetrics and Gynecology, Women's Medical College of Pennsylvania, Philadelphia, Penna.*

10:10 Recess — Visit Exhibits

10:40 "Delayed Adolescence"
Walter R. Eberlein, M.D.
*Department of Endocrinology, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania*

11:20 Panel Discussion

12:00 Luncheon — Exhibits

P. M.

1:30 "Psychosocial Problems"
Thomas L. Anderson, M.D.
*Fellow-In-Medicine, The Adolescents' Unit,*
*The Children's Medical Center, Boston, Massachusetts*

2:10 Recess — Visit Exhibits

2:40 "The Underachievers"
George Bright, M.D.
*Department of Pediatrics, Medical College of Virginia, Richmond, Virginia*

3:20 Panel Discussion

4:00 Adjournment

Cocktails and a dinner-dance will follow at the Brandywine Country Club.

# In Brief

## The Month in Washington

### Medicare Carriers

Three-fourths of the medicare Part B carriers are now using individual physician fee profiles in determining reasonable charges. The Social Security Administration said that these 36 carriers, collectively process 80 per cent of the medicare bills submitted by physicians. The remaining 14 carriers which have not yet fully developed the individual physician fee profiles are employing other interim techniques. Some use, in addition to prevailing fees, fee schedules; others, relative value scales.

The medicare law calls for individual determinations by the carrier which take into account the customary charges of the physician and the prevailing charges in the locality for similar services. In addition, carriers must assure that the charges determined to be reasonable for medicare beneficiaries are not higher than the charges for comparable services under comparable circumstances to their own policyholders and subscribers, according to the SSA.

Payment is to be made on the basis of the lowest of those three criteria, or the physician's actual charge, if that is still lower, the SSA said.

The medicare hospital deductible will be increased from $40 to $44 January 1, 1969. The law specifies that if an annual review shows that hospital costs have changed significantly, the hospital deductible amount must be adjusted for the following year. Necessary increases in the deductible amount are to be made in $4 steps to avoid small annual changes.

### Shortage of Physicians

The shortage of physicians, particularly general practitioners, was cited in a government report as a factor in the increase in physicians' fees since World War II.

The Bureau of Labor Statistics (BLS) reported that charges for medical care, including hospitalization, had risen at an annual rate of 3.9 per cent since World War II while prices of all consumer items combined advanced at a rate of 2.6 per cent per year. The bureau said that medical care prices had risen at a faster rate in recent years, 6:6 per cent in 1966 and 6.4 per cent in 1967. Physicians' fees, while not advancing as rapidly as hospital charges, had more than doubled in the past 10 years; hospital charges more than quadrupled.

Doctors have tended to attribute their higher fees to the general economic conditions and the higher cost of doing business. With an overload of patients, physicians have tried to discourage the practice of making house calls by raising the rate for such a service to a level few patients are willing to pay. The postwar emphasis on medical specialists has also helped to boost physicians' fees. The number of GP's declined from 73,593 in 1963 to 68,920 in 1967.

The BLS conceded that its reports on health care costs do not give adequate consideration to improvements in the quality of medical care as reflected in longer life spans, improved and more efficient techniques for treatment, shorter hospital stays, etc.

**Drug Traffic**

President Johnson signed into law a bill that provides for tougher penalties for illegal traffic in amphetamines and barbiturates. LSD also is covered specifically. The new law makes illegal possession, manufacture or disposal of the drugs a misdemeanor carrying maximum penalties ranging from imprisonment of one year and a fine of $1,000 to imprisonment of 15 years and a fine of $20,000. Leniency is authorized for first offenders.

**Speakers on "Ask the Doctor"**

Speakers for December, 1968, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are: Dec. 3, Albert Dworkin, M.D., *Pain Relief in Childbirth;* Dec. 10, Edward F. Gliwa, M.D., *Influenza;* Dec. 17, Philip R. Walker, M.D., *Anesthesia for Children*; Dec. 24, Barrie L. Weisman, M.D., *Food Poisoning*; Dec. 31, Martin B. Pennington, M.D., *Rehabilitation.*

**Seaford Seminars**

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 p.m. on the second and third Thursdays of each month from September, 1968, through June, 1969:

Dec. 10, 1968, *Office Procedures and Diagnostic Tests in OB-GYN*, Richard Raiber, M.D.

Dec. 17, 1968, *Plastic Surgical Panorama*, Peter R. Coggins, M.D.

**Alcoholism Drama**

*Lady on the Rocks*, a play by Elizabeth Blake, commissioned by the National Council on Alcoholism from Plays for Living, will be given at the First Unitarian Church, Sharpley, on December 6-7, at 8 p.m. The public is cordially invited to attend this performance, sponsored by the Wilmington Council on Alcoholism.

**Oncology Service**

A new National Cancer Institute-Veterans Administration Medical Oncology Service will function at the Washington, D. C., Veterans Administration Hospital as a part of both their medical service and the Medicine Branch of the National Cancer Institute, NIH. The new service reflects the growing importance of drugs in cancer treatment and will serve as a focal point for the Institute's expanding research program on lung cancer and certain other forms of cancer. The service will conduct clinical trials with new and established anticancer drugs and investigate the activity of new agents. It will also evaluate the possible role of the body's defense mechanisms in influencing the survival time and response to treatment of patients with lung cancer.

**Our Enemy the Cow**

The milk from domestic cows contains more saturated fatty acids (the ones indicated in the production of human atherosclerosis) than does the milk from wild cattle, says Dr. M. A. Crawford of the Nuffield Institute of Comparative Medicine in London.

The reason may be that the clean grasslands on which our lucky modern cows usually graze are free of the wild seeds high in unsaturated oils, and the fat content of the milk produced by the cattle seem to reflect this dearth of unsaturates in their own diet. Thus modern milk is more dangerous than old fashioned milk used to be, and civilization strikes again.

## CLINICAL NOTICES AND MEETINGS

**Cryosurgery Meeting**

The Society of Cryosurgery will hold its annual meeting at the Hilton Plaza, Miami Beach, Jan. 12-17, 1969. For details, write: John G. Bellows, M.D., Secretary, 30 N. Michigan Ave., Chicago, Ill. 60602.

**American College of Physicians**

The ACP will present the following courses:

December 2-6, 1968; Physical Methodology in Medical Research, at the Vannevar Bush Room (10-105), Massachusetts Institute of Technology, Cambridge, Massachusetts.

January 6-10, 1969; *Workshops in the Physiology, Diagnosis and Treatment of Electrolyte and Acid-Base Disorders,* at the University of Pennsylvania School of Medicine, Philadelphia.

Fees for these courses are: Members, $60; Nonmembers, $100. For details, write: Edward C. Rosenow, Jr., M.D., Exec. Dir., ACP, 4200 Pine St., Philadelphia, Pa. 19104.

**Colon and Rectal Surgery**

The Annual Oration Meeting of the Pennsylvania Society of Colon and Rectal Surgery will be held January 10, 1969, at the Union League Club of Philadelphia, Broad and Sansom Sts., Philadelphia. For information write, Valentine R. Manning, Jr., M.D., 3336 Aldine St., Philadelphia.

**ACP Regional Meetings**

The American College of Physicians announces the following regional Meeting: *North Carolina Regional,* Greensboro, N. C., Dec. 5-7, 1968.

**Thoracic Postgraduate Course**

The American Thoracic Society will present a postgraduate course in *Pulmonary Function in Health and Disease,* December 9-12, 1968, at the Auditorium, Tulane University School of Medicine, New Orleans, Louisiana. Fees are: $100 for Physicians; $25 for nurses and technicians. For details, write: Miss Joan Ritchie, Course Registrar, Suite 407, Louisiana Thoracic Society, 305 Baronne St., New Orleans, La. 70112.

**Obstetrics Symposium**

An obstetrics symposium, *New Perspectives: Obstetrics 1968,* will be held at the Jefferson Medical College of Philadelphia, December 13 and 14, 1968. The fee will be $50.00 for practicing physicians. Further information may be obtained by writing: John H. Killough, Ph.D., Associate Dean, Jefferson Medical College, 1025 Walnut St., Phila., Pa. 19107.

## STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

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| C. Total Paid Circulation | 682 | 682 |
| D. Free distribution by mail, carrier or other means | 249 | 234 |
| E. Total Distribution | 931 | 916 |
| F. Office use, left-over, unaccounted, spoiled | 39 | 54 |
| G. Total | 970 | 970 |

I certify that the statements made by me above are correct and complete.

ANNE B. SHANE

# The Physician and The Pharmacist

A monthly feature of the Delaware Pharmaceutical Society

## DRUG ABSTRACTS

### ANTABUSE

**Hemorrhagic Necrosis of the Brain**

The following case report emphasizes the dangers of ambulant, secretive and inexpert use of disulfiram (Antabuse; Ayerst).

A 33-year-old man had been drinking excessively for about two years. His wife consulted a physician who issued a prescription for Antabuse. This was done without the patient's knowledge, without examination, and without warning of possible side effects of the drug. For a period of approximately six weeks the patient's wife surreptitiously added Antabuse to various foods consumed by the husband. During this time the patient regularly developed alcohol-Antabuse reactions. The morning after having consumed one of many "medicated" meals the patient was noted to be unusually apathetic. The physician who prescribed the Antabuse diagnosed the patient's condition as alcoholic intoxication and administered analeptics (pentetrazole and oxedrine). A few hours later the doctor again visited the patient and again administered analeptics. The patient's condition continued to deteriorate and hospitalization was finally arranged. The patient was dead on arrival. Autopsy revealed mulitiple hemorrhagic necrosis of the cerebral cortex, thalmus and medulla and necrosis of the myocardium of toxic or hemodynamic origin. The observed changes could only be explained by a complex series of events in which a toxic component was superimposed upon general circulatory collapse at the height of an Antabuse-alcohol reaction. Surreptitious medication, as in this case, makes therapeutic management and surveillance impossible. From a legal standpoint secret medication renders the doctor liable to punishment. The patient could also sue the doctor for damages.

Althoff, H. *(Inst. Forensic Med., Univ. Cologne, W. Germany)*, Dtsch. med Wschr. 93:172, 1968.

### PENICILLIN — Hemolytic Anemia

Two cases of penicillin-induced hemolytic anemia are reported. Typically, the anemia occurs in patients who have received large doses of the drug in the past and are given penicillin again in doses of 10 million units or more daily. In addition to a falling hemoglobin level and a rising reticulocyte count, the patient's red cells are strongly agglutinated by anti-IgG sera. On withdrawal of penicillin the hemoglobin level rises quickly, and the direct antiglobulin test becomes negative in two to three months. Since large doses of penicillin are given to patients with diseases commonly associated with anemia (subacute bacterial endocarditis, septicemia, etc.), a hemolytic attack resulting from the antibiotic may pass unrecognized unless this possible cause is borne in mind.

White, J. M. et al: (Royal Post grad. Med. School, London, Eng.,) Ph. & Ph. British M.J., 3:26 July 6, 1968.

### ZYLOPRIM

**Mascular Leisons**

Pinnas recently observed a 65-year-old patient who developed an acute hemorrhagic disciform lesion of the macula while receiving Zyloprim (allopurinol, BW & Co.) for gout. The hemmorhage occurred six weeks after beginning a regimen of Zyloprim (600 mg daily). Vision in the affected eye was found to be 4/200. The drug was immediately withdrawn and six weeks later the vision in the affected eye had returned to 20/50. The acute onset and rapid disappearance of the lesion in conjunction with the use and discontinuation of Zyloprim suggested a possible association (or perhaps durg-induced acceleration of preexisting senile macular degeneration). A similar observation was made several years ago by Laval whose patient was also receiving Zyloprim for gout. In this case there was a sudden decrease in vision from 20/20 to 20/40 associated with small exudative lesions at the macula, but without hemorrhage. The patient's vision returned to normal three months after Zyloprim was withdrawn.

*Pinnas, B: Arch. Opthalmol. 79:786, June 1968.*

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# ATTITUDES TOWARD VENEREAL DISEASE

• **A successful Venereal Disease Control Program must recognize the varied attitudes of everyone concerned — not only that of the individual patient, but that of others potentially in the same situation, and of physicians and all other persons in any way involved in the management of these patients.**

Winder L. Porter, M.D.,

Although it would appear that the outcry over the resurgence of the venereal diseases as a major health problem has been heard, it would also appear that this message has been received with apathy. Possibly, this is because the average person fails to sense any personal involvement. When the spotlight focuses upon leukemia, muscular dystrophy, cystic fibrosis or some similar malady, people are able to recall some child up the street, or around the corner, or in the recent news who had a similar condition, but when the concern is for a venereal disease which is much more common than any of these conditions, these same people completely overlook that the VD patient may be a bridge partner, that nice kid next door, or possibly even some member of one's own household.

Somehow the notion is perpetuated that contracture of venereal disease bespeaks of wallowing in filth or gross disregard of sanitary precautions and therefore is something that just does not happen to "nice people." For reasons not very evident, we have completely failed to get across the idea that unrestrained sexual activity fosters spread of venereal disease and that each addition in number of sexual partners proportionately increases the risk of acquiring one of these diseases. Employment of various contraceptive measures is not limited to prevention of unwanted pregnancy within marriage, but often is accepted as a release for freedom in divergent sexual activity without regard to the danger of transmission of disease in that manner. Parents will acknowledge awareness of sexual indulgence by their children but vigorously protest any possibility of their having VD, because they do not go with "that kind" just as though only a particular type of individual acquires these diseases. This attitude finds expression in reluctance to being seated while awaiting processing in a VD clinic and a positive refusal to use the restroom facilities lest somehow one will pick up contamination.

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Dr. Porter is Director, Division of Venereal Disease Control, Delaware State Board of Health.

Again somewhere we have failed to impress the idea that these diseases do not have to present themselves dramatically, or that many manifestations might be regarded as insignificant and could be readily mistaken for some other process. Patients disclaim the possibility of being diseased because they do not feel ill, have not broken out with sores, or have no purulent discharge. Very often typical lesions of infectious syphilis have to be pointed out to the patient either because they are unnoticed or because they are attributed to allergy, chafing, bites, a "haircut" or some similar causation.

Laymen are not alone in this misconception, for physicians repeatedly dismiss their patients as "not infected" because there is no clinical evidence, even though we remind them that the vast majority of syphilis patients will be encountered in the latent stage where there are no manifestations. Regularly we see patients who have been processed by other physicians who have completely overlooked what actually are significant signs. In a recent instance, there arose the delicate question of how far our responsibility extended when we learned that a patient with typical secondary syphilis of the hands was employed in the household of a physician and that he had given treatment for what he called a "detergent rash." Others in the secondary stage have received varied diagnoses such as ringworm, impetigo, chicken pox, psoriasis, etc. Index of suspicion is high when the patient is a laborer in working garb, but not when he is well-dressed and engaged in a business or profession. Homosexuality as a mode of infection is often not even brought into consideration.

## Myths

Doctors also, cannot escape censure for helping perpetuate the myth that toilet seats or doorknobs are factors in VD transmission or that gonorrhea can be gotten from the douche nozzle, or results from "a strain." Patients are given treatment under various guises and subterfuges without ever being informed of the venereal origin of their complaint. This may be quite acceptable in the little old lady whose syphilis started many years ago and who no longer is likely to infect anyone else but cannot be condoned when the woman is pregnant and, therefore, a menace to her unborn child, or when she is in a communicable stage and may already have been responsible for spread to others, knowingly or not.

Patients are being treated without any insistence upon follow-ups appropriate to the condition. It is common to have the gonorrhea patient relate that he was given an injection and told to come back only if he had more trouble. Often the dose is inadequate under current standards and sometimes dependence is placed upon oral penicillin which consistently relieves discomfort of the disease but fails to eradicate the gonococcus.

Treatment may be given without any effort to identify the source or to extend protection to exposed contacts. Such contact may be dismissed because she was picked up in a taproom or in a big city but an experienced investigator can often elicit information enough to locate her and also other contacts not previously mentioned. This matter of epidemiologic treatment for every female known to have had relations with a male gonorrhea patient is a keynote to the effort to control this disease but a concept very difficult to sell to some physicians who do not realize how the disease behaves in the female and the difficulty in confirming its presence. Some men will conscientiously take their paramours to be treated but completely overlook need to provide protection for the wife also. Admittedly, the physician faces the question of confidentiality when a man is unwilling for his wife to know he has been unfaithful, but he cannot allow this to ablate his responsibility to her also. This concept works both ways for at times a man is so sure that he has contracted infection elsewhere, that he is unwilling to implicate his wife or regular sex partner and may not become convinced she is a factor unless he becomes infected a second or third time.

One young man phoned to register indignation that anyone would insinuate that his wife could possibly have gonorrhea or that he too should be examined. Just to show how ridiculous he considered the allegation, he was going to blithely ignore the suggestion. A few days later he sheepishly reported to the clinic with typical gonorrhea, and now was quite willing to listen.

In this discussion of attitudes, one must point out the marked contrasts in individual patients. Some adopt the attitude that disease is going around and they are just as likely to catch it as they would if it were the flu or similar respiratory virus. Others feel confident that they know how to pick safe partners, or try to confine themselves with a particular social class or age group. Knowledge alone is not sufficient for some are willing to take risks even though aware what might ensue and even repeaters who are allergic to penicillin will remain promiscuous and depend upon medical science to find a way to clearing them up if they do become infected.

Some are so unwilling to dismiss the concept of "a strain" that when they return with a new infection they are more apt to say, "It came back on me", rather than to accept that they have been infected again. Some have such light regard that they cannot be persuaded to report for necessary follow-up after treatment, so that treatment must be encompassed in a single visit where just as much as possible can be accomplished. If symptoms leave, many patients just will not return when told, and will discontinue any oral medication.

In marked contrast is the occasional patient with a real phobia, such that he returns repeatedly because he feels his disease has relapsed, advanced or done irreparable damage. Though much time is spent trying to assure him that all is well, he shortly returns because of some new fancied adverse development. This is particularly difficult when the serologic test remains reactive after treatment for syphilis, or there has been CNS involvement and patients jump from physician to physician seeking one who will advise more treatment or another spinal.

Persons engaged in any way in a program to eradicate venereal disease, must be aware of these attitudes on the part of VD patients and of physicians who treat them as a relatively small part of their practice. There must be increased awareness of their interpretation of their condition, their frequent reluctance to accept diagnosis, and consequent irresponsibility towards obtaining treatment and safeguarding others with whom they have had contact.

For this reason, we must literally bend over backwards in providing facilities for their care — readily accessible at times which are convenient for those on all common employment shifts, and which are clean, comfortable, attractive and staffed by personnel who will exhibit interest, respect and compassion. If equipment is at hand and a physician is still present and available, they should be accepted and given attention whenever they appear even if stated clinic hour has passed. The prime consideration must be that any measure of control depends upon the extension of treatment to every known and suspected individual as promptly as possible after he presents himself even if it does disrupt usual clinic routine.

## ADVERTISEMENT FOR OURSELVES

"Beyond all the contributions of medical research, advances in public health and technical achievements of the laboratory, lie the health and happiness of the individual patient. Medicine is seen in its essence when a patient goes to his doctor for advice — when they meet together in consultation. All the doctor's training and experience have gone to prepare him for this moment, and a formative element in this preparation will have been his reading of medical journals." *(The General Medical Journal in Clinical Medicine, N.E.J.M., Martin Ware, M.D., Jan., 1968)*

# POINTS ABOUT JOINTS

## *PART III*

Irvine M. Flinn, Jr., M.D.

### The Hip

*Osteochondritis at the lesser trochanter.* I should like to mention two conditions about the hip joint in children. One which occurs in the same age group as Perthes' can be mistaken for it except for two important points. First, the child has more of a limp and walks with a more painful gait than Perthes'. On examination, there is a painful region in the area of the lesser trochanter. It must be palpated to be elicited. Next in importance for diagnosis is the x-ray which will show osteochondritis of the lesser trochanter. This condition is more painful than Perthes'. The treatment I have used is a hip spica cast with a 90-degree flexion of the hip for six weeks. Following this the limp gradually disappears, the gait slowly returns to normal, and the x-ray clears.

*Iliopectineal bursitis.* Far more common is a condition which I have always called iliopectineal bursitis. At any rate the area involved is in the empty space in the groin. Just what or which structures are involved, I cannot say because they all lie in such close proximity. The mother brings the child in stating that he limps. She may say he has been limping for several days. The child is usually from one-and-a-half to six or eight years old. Sometimes, there is a history of injury.

On examination, the hip joint is normal except for slight loss of internal rotation. Sit the child with his legs hanging over the edge of a table. You sit in front of him. Place your hands on his trochanters and your thumbs in position over the empty space in each groin. The child is content. Now, press down on the groin on the opposite side and it's fun; no untoward expression in the child's face. Then press on the side of the limp and the child slowly starts to whimper and call "Mommy." Ease the pressure and he stops crying. Try internal rotation of the femora; on the affected side there will be limitation, almost a protective lurch. Then get the child to raise his thigh with the knee still bent. On the well side he does it easily and can hold it under pressure. On the affected side he sometimes cannot raise it, but usually does so slowly and under pressure he cannot hold it. What has happened is this. All children are inaccurate in the use of their limbs. A child frequently makes an attempt to step up a curb or on a bicycle pedal, does not have enough of his foot on it and consequently his foot slips off as his weight bears on it. He gets a sudden snap or thrust in the groin and the pain and soreness start. Treatment is simple. Keep the child as quiet as possible. Don't make him use his leg until nature wants him to. Rest is the best treatment and nature will help. As soon as the pain is relieved, he will no longer limp. At this point if the injury recurs, he will start to limp again and will need further rest. In most instances this is enough. Complete bed rest is necessary only if the condition becomes chronic. I have seen this condition in teen-

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Dr. Flinn, presently retired, practiced Orthopaedic Surgery, July 1929 - July 1965, and was a Diplomate of the American Board of Orthopaedic Surgeons. He was Chief of Service at Delaware, Memorial and St. Francis Hospitals, and Consultant to Delaware State Hospital, the State Welfare Home at Smyrna, Delaware Curative Workshop, the Children's Bureau and all the downstate hospitals. Dr. Flinn served two years as President of the Medical Board of Delaware Hospital and supervised the State Board of Health's Crippled Children's Clinics.

agers and in adults, but never in an adult where calcium had to be removed as reported in the literature.

*Trochanteric bursitis* is an extremely common condition. It can be bilateral but usually it is unilateral. It is extremely painful but in a good many instances it is easily controlled with Novocaine and hydrocortisone. However, in some instances when there is considerable calcium in the bursal region itself, surgery is indicated. Calcium in the region of the bursa can be located in peculiar positions and must be carefully evaluated. I recall one patient who did not respond to Novocaine and hydrocortisone. X-rays were taken and showed calcium in one view extending straight out from the bone in almost radial alignment. In no other views (which were taken at all angles) could any calcium be found. This caused considerable worry. At operation, a thorough search of the bursa was made and no calcium was found, but lying just outside of the bursa in a thin layer between two layers of fascia was a collection of calcium the length of the bursa but less than a 32nd of an inch thick. This was removed and the patient recovered.

Twice in the course of inserting hip prosthesis the tip has penetrated the cortex in the lesser trochanteric area. This only occurs in those cases which had had a nail in for a year or more. Union had occurred but avascular necrosis developed. Once observed, the mechanism for this is easy to understand. On the medial side of the lateral cortex an ingrowth of bone develops to support the nail through the medullary cavity. If this endostosis is not removed, the tip of the prosthesis strikes it and is deflected to the lesser trochanteric area where it protrudes into the soft parts. Always remove this endostosis and always get a post-surgical x-ray of the prosthesis in two planes before the wound is closed to detect a diverted prosthesis tip if it has occurred.

### Miscellaneous Problems

A woman of 28 years with fairly well-burned-out rheumatoid arthritis appeared one time and complained bitterly of pain in the left hip area. She said that she used to have a lot of pain in the right hip but now it was all in the left. On examination, the left hip was quite painful but the range of motion was fairly normal. In the right hip, however, there was motion only from 135 to 95 degrees which meant that the poor girl could barely walk. She had to use her hurting hip to do most of her weight-bearing because the right leg was in such a bad position that it couldn't bear weight and her back couldn't arch sufficiently to help her put her foot down. Of course, something had to be done. The least damaging treatment seemed to be an osteotomy to bring the range of motion in the right femur into the area of walking. This was planned to remove some pressure from the left hip which by x-ray was beginning to show narrowing of the interspace but no real bone changes as yet. After she healed, she was able to get up and about and walk, and eventually do all her own housework and raise her child. The only thing she could not do was sit except on a high stool, but this was a much better life than she had ever led for ten years. Since then (now 13 years), she has managed quite well with her present situation. Three times she has been to the office complaining bitterly of pain, fearing the worst — an operation on her left hip. But each time her difficulties have been ischial bursitis which cleared promptly under local treatment. She has never had any flare-up of her rheumatoid arthritis; thus, she has been able to do so well.

Everyone seems to have trouble deciding what to do about the lesion following a severe blow in the thigh in the quadriceps area. There is a large swelling, thickening, and later ossification. Is the condition an exostosis or myositis or ossifying hematoma? Except for the chagrin of one's inability to prognosticate, what difference does it make until the end of the waiting period? The condition should be watched for a period until it is "ripe." We must all admit the possibility of sarcoma; this is the main reason for complete observation. In any of the possible conditions, if removal is performed before growth and calcium changes have ceased, it will recur. Hence, wait until ripening occurs. This time the chances are that it will be a hematoma which has attached itself to the bone. (Someone on the other side in a lawsuit is going to say it was an exostosis and was there already.) If it is truly myositis, then removal ends the difficulty provided it is not done until the condition is stationary.

*Charley horse.* A frequent occurrence in office practice is the so-called charley horse in all its various presentations. It occurs when one muscle bundle becomes pinched between two others and the resulting swelling causes constant pain. Though of course not the same thing, a torn soleus on the gastrocnemius offers similar symptoms. The best treatment I know is cribriform strapping, using one-inch wide adhesive. This gives support and with the interspace holes gives the area massage as the patient uses his muscles. Who invented it? I don't know but some 50 years ago Dr. George Bennett learned it from a baseball trainer.

*Osteoperiosteal graft.* Some time ago a woman presented herself in my office who had been operated upon by a neurosurgeon in Philadelphia. He had done a total laminectomy of all the lumbar vertebrae and had also removed the pedicles on one side so that there were no joints whatsoever on one side. The woman was still suffering considerable pain and something had to be done. On exploration, it was possible to determine the nubbins of the remainders of the pedicles. The only bone that I decided was usable was in the form of osteoperiosteal grafts. These were applied and laid across the scar tissue and approximated against the pedicles. Surprisingly enough they took and a good bridge of bone was obtained.

It seemed to me that if osteoperiosteal grafts could accomplish what they did in this instance, they should do well in undisplaced fractures in non-union of the tibia. In a series of eight cases which were reported in an article published in 1951, I used the osteoperiosteal graft alone in treatment and applied it on only one side of the fractured tibia. Union occurred some time between eight to twelve weeks. It did not occur by a pure progression from the graft site because union began to develop on the side away from the graft so that apparently the graft itself stimulated the reparative processes. I wrote Phemister at the time asking his ideas on the subject. He approved of this approach stating that it did not matter to him what kind of a graft was used just so it was bone, and it did not make any difference which way the periosteum lay. Since then I have used the osteoperiosteal graft repeatedly for many things besides non-united fractures of the tibia. One reason I feel it is so good is that it takes a minimum of time. In twenty minutes the graft can be cut and placed alongside the fracture because the fracture itself is not disturbed. Therefore, a minimum of new damage is done.

### Foot and Lower Leg

I feel that quite a few orthopedic surgeons neglect a baby's foot as it grows on the assumption that treatment is a waste of time. I do not agree. We must first determine what we are trying to do is to insure that a child's foot has a chance to develop normally. If a child has a pronated foot a few weeks after birth or when he begins to walk, it does not mean he needs to have one when he grows up. It is our job to produce proper adjustments to his shoe and render other treatments so that his foot will grow normally and not, as in this instance, a flatfoot. Taking care of children's feet is humdrum and not especially exciting, but it pays the office overhead and is a real service to the child. In this type of case the correct regimen is to apply proper wedging in the shoe so that the foot will have proper stress as in a normal foot.

I have never yet seen a corrective shoe that can do the trick. If you will look at the child's talus region after he has been walking in a corrective shoe, with a main arch, etc., you will see a reddened area or even a whitened area where the poor child's arch is being pressed up by the pad in the shoe. Sometimes you will even notice that the child limps. What should be done? Throw the corrective shoes away. Obtain well-constructed, welt-last shoes with flexible soles, preferably leather, and then wedge the inner border of the heel 3/16 of an inch and the inner border of the sole ⅛ of an inch. In six weeks see him again and if there is still no or only slight improvement, see him again in six more weeks. The arch may then begin to be evident on non-weight bearing, but if treatment is neglected, it will promptly drop again, so continue for another three months with another pair of shoes. A child outgrows a shoe in three months. The best criteria I know for proper size at purchase is that the width of the thumb should come between the tip of his toe and the tip of the top of the shoe. At the end of six months the wedge can usually be removed from the sole and the child continues to use the heel wedge only. Usually after a year treatment can be discontinued.

*A normal foot.* Now let us stop and think fundamentally about the foot. First of all, what is a normal foot? Actually we are talking about the two to five-year old foot, but most of the discussion applies to any age. If an impression is made of a wet foot on a dry surface, the posterior and outer side of the heel will show, as well as the base of the 5th metatarsal, all the metatarsal heads, and the tips of the toes. On examination, the main arch will be present and the first metatarso-phalangeal joint will be almost straight-forward from the inside of the os calcis. This means that the other four toes flare slightly to the outside and explains why a straight-last shoe with a flare-out over the 5th toe is the most ideal from the standpoint of foot comfort. Incidentally, one common cause of soft corns between the 4th and 5th toes is due to an insufficient flare in the shoe in this area. On weight-bearing the main arch drops somewhat, but it is still elevated. (In a certain number of individuals, the arch is lower because there is an accessory (pre-hallux) scaphoid; the posterior-tibial tendon is attached to it and to the navicular and does not act like a stirrup under the main arch as in the normal arrangement.) All toes are straight and there are no corns or exostoses or calluses. If the foot is held by the big toe, it will fall into slight equinus at the heel and have an inversion of the forefoot with a locking of all the subtalar joints. This then is the position and the only real one in which to determine heel cord length. Any other position will unlock the subtalar area and break the main arch causing an outward rolling of the tarsus and metatarsus. Russell A. Hibbs was the main exponent of this approach and I have found assumptions of heel cord length by this method most satisfactory.

*Short heel cord.* What happens if there is a short heel cord? First of all, there will be an equinus of the foot. Sometimes that is all, but usually the short heel cord will cause a breaking of the main arch and eversion of the forefoot. The main arch goes down, pronates, and the foot is flatfoot. Or the main arch holds and the string of the bow (planter fascia) between the os calcis and the metatarsal heads becomes shortened; up goes the main arch; down come the metatarsal heads; up go the interphalangeal joints; a clawfoot forms; and calluses appear on the bottom of the foot. It is easy to see that it is worthwhile preventing the deformities from heel cord shortening which can cause a tremendous number of defective conditions.

Heel core lengthening deserves mention. Ideally, we want a lengthened cord so that the heel comes up to a right angle and the calf remains full, not contracted into a little ball in back of the knee. A "Z" lengthening used to be preferred for correction though this frequently causes a shortening of the calf. I now use the White method which I consider the best of them all. There is less scarring on healing and the stretched tendon can definitely be sutured to the proper length so that the calf won't shorten.

In the early treatment of foot disorders we are limited in what the child from one to eight years old can accomplish other than by inadvertent treatment during stretching, etc. Almost no child under the age of eight will do exercises consistently; attention span is too short. After eight years of age many of the foot problems noted above can be alleviated by exercises, always designed to stretch the heel cords, strengthen the internal rotators of the foot, and definitely not to exercise the pronators which are already too strong. I cannot stress too firmly that only the muscles to be strengthened should be exercised.

*Metatarsus varus.* So far we have been talking mostly about pronation. Now let us consider metatarsus varus. It is mainly of two types — metatarsus primus varus and metatarsus varus. A third type involving an inversion of the hips also occurs and can frequently be taken care of by Dennis-Browne splints or even occasionally by pintoe bars. If persistent, then operative intervention is in order.

Simple metatarsus varus is much more prevalent than it used to be but it can be controlled in the majority of instances by casts renewed weekly which will relieve the condition in two to three months. Metatarsus primus varus is a much more severe condition and can lead to bad and painful deformities if not corrected. Here the abductor hallucis is overactive and pulls the hallux way over into abduction. Along with it follows the rest of the forefoot so that except for the straight hindfoot, the foot resembles a clubfoot. Ordinarily, cast treatment will suffice in relieving this condition, but by the time the child is walking Dennis-Browne splints, pintoe bars, and everything else will have been tried. In these recalcitrant cases, a fair number clear because the abductor hallucis usually ceases to function after 2½ years. If it persists, I prefer to operate. I sever the abductor hallucis near its insertion in the phalanx of the hallus and transplant it into the middle of the shaft of the first metatarsal. If the abductor is merely severed and not transplanted, it will reattach. It is therefore necessary to follow the whole procedure.

When a combination of metatarsus varus and pronation occur at an older age, usually a wedge under the inner borders of the heel and a pintoe bar will take care of this condition.

*Habit conditions.* There are a group of cases which are essentially habit conditions. For instance, when a child in a pen first stands, he pulls himself up and holds himself tightly to the rail to keep himself erect. In so doing, he everts his feet and stands with the inner borders of his feet toward the side of the pen. He does this sufficiently often that it feels better to him that way than any other and he learns to stand in eversion. Naturally, his feet must pronate and when he walks, he splays. This condition is usually very easily controlled with wedges. In two to three months he will walk and stand correctly. Other children turn one foot out and the other foot in. These positions must be corrected by the proper wedges and a child so treated will straighten out quickly.

Please note that in our treatment with shoes with wedges, we are attempting to cause the bones of the foot to assume their normal position. By adulthood the bones will have had normal development and will have molded to the proper shape. Corrective surgery when needed must be done, but it still is only a substitute and most of the operated feet are not normal afterwards.

*Avulsion of the tibial tubercle.* Painful heels are a common complaint as is also Osgood-Schlatter's disease. Avulsion of the tibial tubercle can now be well controlled with pressure pads on the tubercle plus elastic bandaging tight enough to restrain motion at the knee but not tight enough to stop circulation. Only in the recalcitrant ones or in those with a loose body is an operation needed.

*Osteochondritis of the calcaneal epiphysis* is best treated by a ½-inch lift in the heel and removal of the casing in the back sides of the heel of the shoe to relieve pressure. If this is insufficient, then strapping the heel in equinus is indicated.

*Knock-knees and bowlegs* are not the problem in orthopedics that they used to be before rickets was controlled. However, there are a certain number of patients who still need some treatment and wedges on the inner borders of the heels will take care of knock-knee. Wedges on the outer border of the heels will take care of bowlegs. All cases treated with wedges on outer borders of heels must be watched closely so that there will be no damage to the main arch. If caution is maintained, treatment should go along satisfactorily.

*Koeher's disease of the tarsal scaphoid* is infrequently seen but is usually well treated with a soft main arch pad to support the area until the bone recalcifies. I remember one case that by x-ray looked exactly like the others but which had a soft fluctuant area over the metatarsal region. Aspiration and culture revealed a pure tubercle bacillus abscess.

*Pre-hallus or accessory scaphoid* is a common condition, but fortunately, only rarely does it cause trouble. Usually wedges with soaks help. Occasionally at eight to twelve years, extirpation is necessary because the condition is definitely crippling when severe. An attempt should be made to release the tendon from the talus and insure, by wrapping it with fat and rendering it smooth, that it will not re-attach and will act as a stirrup under the arch as it should.

*Contracted arches* are best treated by metatarsal bars in the shoes or by severance of the plantar ligament. If this is done, usually at the os calcis, a section of the ligament at least ¾-inch should be removed or it will promptly grow back. After healing, stretching position in plaster, the metatarsal bars should be put back in the shoes.

*Freiberg's disease* is best treated by an anterior arch pad and if this does not suffice, the proximal phalanx of the toe should be removed. Resection of the head of the 2nd metatarsal has not been beneficial in my experience.

*Overlapping 5th toe* is sometimes disabling. A "Z" plasty of the skin and resection of the proximal phalanx gives satisfactory results. The Lanzounis procedure can also be used.

*Fractures of the os calcis.* There are many and varied types of fractures of the os calcis. We should never forget that there is very likely in addition to be a fracture of the lumbar vertebra. When the os calcis is fractured and the position is satisfactory, all that needs to be done is to prescribe crutches and not have a cast applied. The patient continues to move his foot and ankle until such time as the x-rays show that he is ready again for weight-bearing. This frequently is within eight weeks. If this treatment is followed, there is little or no swelling and soreness associated with so many fractured os calces, and there is also a limited amount of excess callus around the fracture site. I recall one English boy who, while walking along, fell into a tank trap; a drop of about twenty feet. He fractured his os calcis, but fortunately, nothing else. When I looked at the x-ray, the only thing that I noted in this fracture was a complete loss of Boehler's angle. It seemed advisable to operate on this and push the joint surface of the os calcis up. Luckily, it clicked back into position so that no extra bone was needed and he was put in a cast for about three or four weeks after which time he was up and around on crutches. As in all such cases, he wanted to get back to his unit so in six weeks I discharged him. I was more than surprised in walking through the ward to see him running back and forth getting his equipment together at the end of just six weeks with no pain and swelling. This taught me the lesson that early weight-bearing in some of these cases is certainly indicated.

#### Difficulties Encountered

One of the main difficulties with old fractures of the os calcis is the swelling, soreness, and pain especially on the outer aspect of the os calcis. To my mind a good many of these do not need a triple arthrodesis. What they need is an extirpation of the excess callus on the outer aspect of the os calcis as it impinges on the lateral malleolus. It is well to note that the fibula in flexion and extension moves with each motion. Hence, impingement can occur on an exostosis or growth of bone where the fracture has healed. If the exostosis is removed, there is no need for triple arthrodesis. If triple arthrodesis is performed but the exostosis is not removed, pain will persist.

*Spurs on the plantar surface of the os calcis* are extremely painful and disabling. X-rays will show the spur at the plantar ligament attachment and also (and this is important) an area of lessened density at the same spot between the ligament and the os calcis. All spurs are not painful but when they are, contrast baths help. Sometimes an anterior heel bar placed slightly forward on the medial side

*Continued on Page 400*

# Editorials

## WHO STILL SMOKES CIGARETTES?

"Cigarette smoking is a health hazard of sufficient importance in the United States to warrant appropriate remedial action."

This is the terse summation of the Surgeon General's Advisory Committee in its newest report on the *Health Consequences of Smoking*, a recapitulation of more than 2000 research studies published since their 1964 report.[1]

Chief among the studies cited are the Dorn study of smoking and mortality among US veterans — an 8½ year follow-up of 293,658 persons with V.A. life insurance; the Hammond deport — an evaluation of causes of death in over one million Americans; the Doll and Hill study which for twelve years has correlated the deaths of all British physicians with their smoking habits; and a Canadian study of more than 100,000 Canadian veterans, pensioners, and their widows.

The studies all corroborate that cigarette smoking of any degree is associated with an increased mortality and morbidity from all respiratory diseases as well as from lung cancer; from heart disease as well as from lung disease; from peptic ulcer; from cirrhosis; from prematurity. The more one smokes, the more harm one does himself. In some instances, for example with coronary artery disease, cessation of smoking is followed by a reduction in risk from disease. The results are too well known to belabor except for their great importance and for the curious fact that many Americans, including physicians, continue to smoke.

Why *are* some of us still smoking?

Those being paid to speculate on the answer to this, the key question, have developed a system of classifying smokers in terms of the way the smokers use cigarettes to manage their emotions. The system of classification proposed does not seem to me to be particularly helpful in achieving understanding of the problem. Types of smoking identified include: habitual smoking, smoking to increase positive affect, smoking to reduce negative affect, and psychologically addictive smoking — the last category is a useful taxonomic wastebasket if ever there was one. For of course an excessive inclination to indulge in any activity, stimulant, food, or pastime could be so classified.

What intrigues, is the question: "*How did smoking ever get to be socially acceptable?*" One would not pause on the steps of the most liberal church to take a swig from one's personal flask of whiskey, nor sit at one's desk in the office and do so. An individual seen rubbing dirt into an abrasion would be considered by all observers mad, or at least deluded. Isn't it then amazing that smoking is acceptable almost everywhere by almost everyone, including those places where drinking, glue sniffing, or the taking of drugs would be highly unacceptable. Society insists on the restriction by responsible adults of gratification of all other physical appetites to appropriate places and times, as well as limiting or entirely prohibiting the fulfillment of some cravings.

One wonders if the millions of dollars which have been devoted to the promotion of cigarettes (which were afterall almost the first item to enjoy the commercial potential of truly creative advertising — "Light up a Lucky instead of a sweet") were responsible for the universal popularity and social acceptability of cigarettes. This is a doubtful hypothesis: the most isolated of the world's citizens immediately learn from the traveling American GI to value cigarettes, and not merely as a form of barter. Furthermore, anthropologists have pointed out that every primitive culture except the American Indian included the use of either alcohol or some narcotic and the American Indian had tobacco instead.

At this point in time, it seems to us that one who still smokes despite the enormous damning fund of information to which we

*Continued on Page 400*

# President's Page

## THE CHANGING PATTERN OF MEDICAL PRACTICE

*One Family, Eight Doctors:* This was the headline on the front cover of one of our popular present medical journals. This represents the growing practice of the Kaiser Foundation Health Plan and the Community Health Foundations, which are spreading from the West and Midwest to the eastern part of our country.

According to Doctor Dwight L. Wilbur, recently elected President of the American Medical Association, "*In ten to fifteen years we will not recognize the methods of medical practice. The family physician will be as dead as a dodo bird. Many of the duties now performed by general practitioners will be done by computers and specially trained personnel.*"

For the last several decades all medical schools have encouraged their graduates to enter research and specialities. At the present time some medical schools are offering residency training in Family Practice. For this, there are certain requirements that must be met so that the new family practitioner's unique and special role will be to make available a total spectrum of care for patient from the cradle to the grave. As the primary physician or physician of first contact, the family physician will evaluate a patient's health needs, provide care within one or more fields of medicine, refer or consult when indicated, and preserve the continuity of care. His specialty will emphasize the family's environment, and will concern itself with the community's health needs and resources. This program has recently had near unanimous vote of the American Academy of General Practice Congress of Delegates at its annual meeting. It is now up for recognition at the American Medical Association Congress in Medical Education next February.

The great need for more physicians in our state is recognized by everyone. This is especially true of the rural areas where there is a great urgency for more family physicians. The present programs that are being formed to assist in the medical education of Delaware medical students will certainly increase the number of physicians available.

It *is* my earnest hope that this may start in operation during 1969.

It *is* my earnest hope that we will have enough family practitioners trained to meet the needs of our citizens.

Charles M. Moyer

# In Memoriam

## ROBERT O. Y. WARREN, M.D.

Sudden death on November 10, 1968, at age 66, claimed Dr. Robert O. Y. Warren, one of the outstanding men ever to practice medicine in Wilmington. He had been in pediatric practice here since 1932, after completing his medical school and post-graduate training at the Johns Hopkins Medical School and Hospital. He was also a graduate of the Mercerberg (Pennsylvania) Academy and Dartmouth College.

The two main professional interests of Dr. Warren lay in the education and pediatric fields, with broad perspective and significant practical contributions to both. He was one of a number of consultants on a national basis to the American Academy of Pediatrics; he was an active staff member of Childrens Hospital, and an Associate in Pediatrics, University of Pennsylvania Hospital.

In Wilmington he became one of the first three pediatricians to practice here and was always working to enlarge the fields of medical approach to the problems of children. He was instrumental in forming the Child Guidance Center; and the Child Diagnostic and Developmental Center, of which he was president. He was also director of the medical department of the Children's Bureau of Delaware, and a member of the Medical Advisory Board of the Wilmington Public School Board of Education, as well as being physician for the Tower Hill School. During his last few years he had been Director of Medical Education in the Wilmington Medical Center, and had devoted most of his efforts and time toward bringing the Center excellence in the field of medical education. Despite all this he was still able to carry on an active private practice which not only included children, but children who had grown up to have children of their own. He also served well as a father-confessor and advisor to many in and out of the field of medicine.

In World War II, Dr. Warren entered the Army as a Lt. Colonel, serving in evacuation hospitals with the Fifth Army in the campaigns through North Africa and Italy. He was discharged from service in 1945 with the rank of Colonel, and returned home "to make up for lost time." In addition to all the professional activities, he began to travel extensively, taking his entire family with him, and explored America on a series of trips.

Travel remained important in his life — and it was romantic travel. The themes of his travel interests were typical of the man, and his love for people, with emphasis on seeking the sites and remnants of earlier men and their cultures which culminated in our Western culture, and the religious common denominations which have marked them. Religion was a strong factor in his life, and he kept by his desk a prayer asking that he be given the strength and understanding to meet all men's problems. This prayer must have been answered, for few men have succeeded so well in this respect.

His love for mankind in general was exceptional, but his devotion was to children — all children — and perhaps was best expressed by Dr. Warren himself, in a letter written to his wife during the war: " — I am seeing young men, but I miss the babies, the sound, sight and smell of babies."

Dr. Warren is survived by his wife, the former Florence E. Prickett, who lives at their country home "Mahogany Hill" near Fairville, Pennsylvania. He is also survived by their three sons Robert O. Y., III, Fort Wayne, Indiana; Dr. W. Stuart, a Philadelphia pediatrician; David B., Houston, Texas; and five grandchildren.

The local chapter of the American Academy of Pediatrics has started the Robert O. Y. Warren Memorial Fund for Continuing Education to perpetuate his memory. Joining with them in this memorial are individuals and organizations who have asked to be allowed to contribute to his memory.

* * *

## Everett M. Aikman, Sr., M.D.

Dr. Everett M. Aikman, Sr., retired, died on October 2, 1968. He had been in retirement for nearly five years, and had been ill for some time.

Dr. Aikman was a native of Indianapolis, Indiana, and was a graduate of Wabash College and the Indiana University School of Medicine, receiving his M.D. in 1918. He specialized in general surgery and was Associate Professor of Surgery at his alma mater, as well as a private practitioner of surgery. For reasons of health, Dr. Aikman joined the Du Pont Company in New Jersey in 1933, on a part-time basis.

Dr. Aikman came to Wilmington in 1936, and because of his interest in the field of proctology, and the urging of the Du Pont Company, entered training at the University of Pennsylvania. He later taught in this department at that hospital, and became Wilmington's first proctologist. He retired from the Du Pont Company in 1956, continuing his private practice until full retirement in 1963.

In his early years Dr. Aikman was an autoracing enthusiast and a semi-professional baseball player. In his later years his hobbies were limited to golf and gardening. He was a respected and beloved member of the local state societies, and was noted for his gentleness of spirit, word and thought — attributes which we will miss.

Dr. Aikman was predeceased by his wife, Florence Petri, in 1967. He is survived by two sons, Fairfax H., of Wilmington, and Everett M., of Pittsburgh; a stepdaughter, Mrs. Thomas C. Overman of Warren, Ohio, and four grandchildren,

# In Brief

**In the News**

R. Douglas Sanders, M.D., won second prize in the water color category and third prizes in the oil-acrylic and drawing categories in the Second Annual Physicians' Art Exhibit of the American Society of Anesthesiologists in Washington, D. C.

John M. Levinson, M.D., Wilmington, and Robert F. Lewis, M.D., Seaford, have been appointed to the board of trustees of Blue Cross and Blue Shield of Delaware.

**The Proctoscopic Examination**

The American Cancer Society and Kiwanis International have undertaken a major educational program to promote health check-ups, including a proctoscopic examination for men over forty. There are nineteen clubs in the state with 746 members, who may be seeking "proctos" as a result of this joint effort. Delaware Division, American Cancer Society, will officially launch the planned program in mid-January, 1969, and all physicians in the state may expect an increase in the number of requests for checkups for men shortly thereafter.

Area physicians whose possible concern may be with this potential cancer site will be receiving a supply of literature for distribution to their patients in the near future. The co-sponsors of this program take this opportunity to thank in advance all physicians who participate. Your cooperation is vital to the success of this venture.

**Speakers on "Ask the Doctor"**

Speakers for January, 1969, on the Tuesday Radio Program, (11:05 a.m., WDEL) produced by the Medical Society of Delaware are:

Jan. 7, Walter L. Bailey, M.D., *Fractures about the Hip;* Jan. 14, Jerome Kay, M.D., *Depression;* Jan. 21, Howard Cohen, M.D., *Hoarseness;* Jan. 28, Robert Beattie, M.D., *Medical Aspects of Commercial Aviation.*

**Seaford Seminars**

The Seaford Seminars of the Medical Society of Delaware will be held at the Nanticoke Memorial Hospital from noon to 1 p.m. on the second and third Thursdays of each month from September, 1968, through June, 1969:

Jan. 14, 1969, *Radiologic Topic to be Announced*, John W. Alden, Jr., M.D.

Jan. 21, 1969, *Normal Variants of Electrocardiograms*, Alfred E. Bacon, Jr., M.D.

**Control of Tuberculosis**

The National Communicable Disease Center presents courses in Control of Tuberculosis at two hospitals. These courses will provide participants with the latest knowledge available concerning the diagnosis, treatment and control of the disease. At the National Jewish Hospital, Denver, Colorado, they will be given: Jan. 27-Feb. 7, July 28-Aug. 8, Oct. 13-24, 1969. At Battey State Hospital, Rome, Georgia, dates are Feb. 3-14, Mar. 17-28, May 5-16, July 21-Aug. 1, Oct. 6-17, Dec. 1-12, 1969. All courses are pending approval for post-graduate credit by the American Academy of General Practice. For details, write: Phyllis Q. Edwards, M.D., National Communicable Disease Center, Atlanta, Georgia 30333.

# PROCEEDINGS OF THE HOUSE OF DELEGATES, 1968

## MEDICAL SOCIETY OF DELAWARE

The 179th Annual Session of the House of Delegates, Medical Society of Delaware, was called to order in the Delaware Academy of Medicine, 1925 Lovering Avenue, Wilmington, Delaware, on Sunday, October 20, 1968, at 2:00 P.M., Daniel J. Preston, President, presiding.

Secretary Abbiss took the roll call and a quorum was declared.

A motion was made, seconded and approved to accept the minutes of the 1967 Session as published in the Delaware Medical Journal.

## REPORTS OF THE OFFICERS

(All reports were accepted as published.)

### REPORT OF THE SECRETARY

**Joseph W. Abbiss, M.D.,** ***Secretary***

Eight meetings including today's meeting were held during this past year. All business transacted by the Society has been recorded in the minutes as presented by the Secretary.

The total membership as of October 15 is as follows:

| | *Members* | *1968 Dues Exempt Members* | *Total* |
|---|---|---|---|
| New Castle County | 363 | 41 | 404 |
| Kent County | 37 | 3 | 40 |
| Sussex County | 48 | 9 | 57 |
| Total | 448 | 53 | 501 |

### REPORT OF THE TREASURER

**Lawrence Katzenstein, M.D.,** ***Treasurer***

The report of the Treasurer for 1967 is in two sections. The first consists of a statement of income and expenses for the twelve months of calendar 1967. This has been prepared by Haggerty and Haggerty, certified public accountants, and is presented with some condensation from their 1967 audit of the Society's accounts.

The second section is a statement of income and expenses for the first nine months of 1968. This is not audited at the moment, since it is an interim report. The audit for 1968 will be done at the end of this calendar year.

### PART I

### STATEMENT OF INCOME AND EXPENSES CALENDAR 1967

| | | |
|---|---|---|
| Bank Balance Checking Account — December 31, 1967 | | $ 6,484.95 |
| Operating Receipts | | $38,819.60 |
| Contra Receipts | $31,157.34 | |
| Contra Disbursements | $31,420.15 | |
| Balance from Contra Funds held in account | $ –262.81 | |
| Total Operating Receipts | | $38,556.79 |
| Operating Disbursements | | |
| Personnel | $20,230.27 | |
| Office Operation | $ 6,337.68 | |
| Insurance | $ 429.70 | |
| Typewriter | $ 520.00 | |
| Travel and Expenses | $ 2,279.23 | |
| Annual Meeting | $ 6,308.80 | |
| Subscription, Contributions, Dues | $ 605.50 | |
| Operations of Committees and Contingency Funds | $1,922.57 | |
| Total Disbursements | | $38,633.75 |
| Transfer of $15,000 to Artisans' Savings Bank for Interest | | –$15,000.00 |
| Reimbursible Expense | $2,619.22 | |
| Reimbursed Expense | $3,158.03 | $ +538.81 |
| Interest on Treasury Bills | | $ +346.50 |
| Transfer of $10,000 to Checking Account from Artisans' Bank | | +$10,000.00 |
| Balance Checking Account — December 31, 1967 | | $ 2,293.30 |

### ASSETS

| | | |
|---|---|---|
| Bank Balance — | | |
| Checking Account — December 31, 1967 | $ 2,293.30 | |
| Artisans Savings Bank | 10,569.67 | |
| Wilmington Savings Fund Society | 7,216.34 | |
| CASH ASSETS | $20,079.31 | |
| Investments | | |
| Stocks — Book Value — December 31, 1967 | $14,012.37 | |
| U. S. Treasury Bills — Due September 30, 1968 | 6,636.08 | |
| INVESTMENT ASSETS | $20,648.45 | |
| TOTAL ASSETS | | $40,727.76 |

## PART II
## INTERIM TREASURER'S REPORT
### SEPTEMBER 15, 1968

| | | Budgeted | |
|---|---|---|---|
| Bank Balance Checking Account — December 31, 1967 | | | $ 2,293.30 |
| Operating Receipts | | $39,430.00 | $35,911.48 |
| Contra Receipts | | $30,955.00 | $31,640.55 |
| Contra Disbursements | | $30,955.00 | $31,754.50 |
| Balance from Contra Funds held in account | | | $ –113.95 |
| Total Operating Receipts | | | $35,711.63 |
| Sale of Bank of Delaware and Farmers Bank Stock | | | $15,288.00 |
| Operating Disbursements | | | |
| Personnel | | $22,389.00 | $15,787.57 |
| Office Operation | | $ 6,775.00 | $ 5,591.91 |
| Travel and Expenses | | $ 2,900.00 | $ 2,181.03 |
| Annual Meeting | | $ 3,652.00 | $ 171.18 |
| Subscription, Contributions, Dues | | $ 510.00 | $ 550.00 |
| Operations of Committees and Contingency Funds | | $ 3,204.00 | $ 1,035.91 |
| Total Disbursements | | $39,430.00 | $25,317.60 |
| Reimbursible Expense | $2,373.44 | | |
| Reimbursed Expense | 2,902.96 | | $+ 529.52 |
| Stock Purchases | | | $–13,778.66 |
| Transfer of $15,000 to Artisans' Bank for Interest | | | $–15,000.00 |
| Transfer of $5,000.00 to Bank of Delaware | | | $+5,000.00 |
| Balance Checking Account — September 15, 1968 | | | $ 4,812.09 |

The following stock purchases were made:

| | | |
|---|---|---|
| Texaco, Inc. | 50 Shares | $ 4,045.28 |
| Warner Lambert Phar. | 100 Shares | 4,078.69 |
| Eastman Kodak | 10 Shares | 1,377.00 |
| Minnesota Mining & Mfg. | 50 Shares | 4,277.69 |
| | | $13,778.66 |

## REPORTS OF THE STANDING COMMITTEES

(All reports were accepted as published.)

### COMMITTEE ON BUDGET

**Lawrence Katzenstein, M.D., *Chairman***

We recommend adoption of the following budget for calendar 1969:

| | |
|---|---|
| Receipts | |
| Dues | $32,000.00 |
| DMJ-Subscriptions | 1,300.00 |
| Scholarships | 2,200.00 |
| AMA Dues | 27,400.00 |
| AMA 1% Coll. Rebate | 279.00 |
| Exhibits & Grants | 4,000.00 |
| Dividends and Interest | 2,400.00 |
| DMJ Overhead Contributions | 980.00 |
| Banquet | 2,385.00 |
| Total | $72,944.00 |
| Contra | |
| AMA Dues | $27,400.00 |
| AMA Dues Rebate | 279.00 |
| Scholarships | 2,000.00 |
| DMJ-Subscriptions | 1,300.00 |
| Total | $30,979.00 |
| Working Balance | $41,965.00 |
| Disbursements | |
| *Personnel* | |
| Salaries | $22,100.00 |
| Payroll Taxes | 972.00 |
| Blue Cross-Blue Shield | 355.00 |
| Total | $23,427.00 |
| *Office Operation* | |
| Contribution to Academy | $ 2,500.00 |
| Printing, Postage, Stationery | 1,700.00 |
| Telephone and Telegrams | 1,200.00 |
| Audit | 200.00 |
| Office Supplies | 1,000.00 |
| Miscellaneous | 100.00 |
| Total | $ 6,700.00 |
| *Travel and Expenses* | |
| AMA Delegate | $ 1,000.00 |
| AMA-MSEA Conference | 275.00 |
| AMA Institute | 375.00 |
| Local | 500.00 |
| Contingency | 750.00 |
| Total | $ 2,900.00 |
| *Annual Meeting* | |
| Dining Room Amplification | 185.00 |
| Silver Tray and Service Award | 85.00 |
| Stenotyping | 195.00 |
| Printing | 330.00 |
| Prospectus | 70.00 |
| Supper, House of Delegates | 350.00 |
| Banquet | 3,099.00 |
| Banquet Entertainment | 258.00 |
| Guest Speakers—Expenses | 800.00 |
| Reception | 400.00 |
| Clerical Help | 300.00 |
| Janitorial Help | 125.00 |
| Registrars | 60.00 |
| Miscellaneous | 50.00 |
| Total | $ 6,307.00 |
| *Subscriptions, Contributions and Dues* | |
| Blood Bank | $ 218.00 |
| AMA—Aces and Deuces | 50.00 |
| Delaware Better Business Bureau | 35.00 |
| Medical Society Executive Association | 20.00 |
| Delaware State Chamber of Commerce | 50.00 |

| | |
|---|---|
| Delaware State Science Fair | 100.00 |
| Presidents and Presidents-Elect | 10.00 |
| Contributions—Contingency | 100.00 |
| Total | $ 583.00 |
| Operations of Committees and Contingency Funds | $ 2,048.00 |
| TOTAL DISBURSEMENTS | $41,965.00 |

### PROGRAM COMMITTEE

**Daniel J. Preston, M.D., *Chairman***

We are continuing in our efforts to present a program that will appeal to the majority of physicians. The general registration totaled three hundred five last year, and I know with the excellent exhibits to be seen this year the registration will increase.

### COMMITTEE ON PUBLIC LAWS

**Allston J. Morris, M.D,. *Chairman***

The Committee on Public Laws held seven formal meetings from November of 1967 through June of 1968. At many of these meetings Doctor Andrew Gehret, Chairman of the New Castle County Committee on Legislation, was present and the Chairman of the Committee on Public Laws attended many of the meetings of the Legislative Committee of the New Castle County Medical Society. Thus, an attempt was made to keep communications open. At various meetings the following individuals were present by invitation:

Mr. Richard Griffith, Executive Director of the Association of Delaware Hospitals, Inc.
Mr. Clifford Foster, Executive Director of the Health Facilities Planning Council
David F. Anderson, Esquire
David Levitsky, M.D.
Eugene Syrovatka, LL.D.
William O. LaMotte, Jr., M.D.
Park W. Huntington, M.D.
S. S. Bjornson, M.D.
Mr. Ted Adams

In a further effort to increase communications within professional groups, the Chairman met on one occasion with Doctor Bradford, head of the Committee on Legislative Affairs of the Delaware Osteopathic Association. Considerable time was spent in an effort to compose differences which existed concerning the hospital licensure bill. Some further elucidation of the problems involved in a licensure law for physical therapists was developed, but no final action was taken. Legislation to amend the medical licensing act to permit ritual circumcision was considered.

An effort was made to find common ground between the proposal of the Venereal Disease control Committee that the results of serologic testing be reported to the State Board of Health, and the position of the pathologist, which had been expressed to the House of Delegates at the annual meeting in 1967, as being opposed to such reporting. Doctor Bjornson was involved in these discussions. It was the opinion of the members of the Public Laws Committee that a numbering system might meet the objections of some of the pathologists who feared infringement on the privacy of the patient. This matter had not been finally settled at the time of the last meeting of this committee in June.

It was the consensus of the members of the Committee on Public Laws that from time to time passage of important legislation would be facilitated by the broadest possible consensus among all interested professional groups. This is planned for the 1968-1969 session.

### PUBLICATION COMMITTEE
### DELAWARE MEDICAL JOURNAL
### REPORT OF THE EDITOR

**Robert B. Flinn, M.D., *Chairman***

During the last year three new departments have been added to the Journal: Highlights, Special Reports and Clinical Conferences. These are abstracts of meetings of interest that have been attended by members of the Society.

Changes in the Journal staff are as follows: Bernadine Z. Paulshock, M.D. has been elevated to the position of Senior Associate Editor. The Publications Committee also wishes to welcome the addition of Albert L. Ingram, M.D., and Carl I. Glassman, M.D., to the Board.

Through the efforts of the Editorial Board, the Journal has a solid backlog of three or four months making it able to plan more carefully the composition of each issue and to upgrade the scientific quality of the articles published. Every manuscript and news article submitted to the Journal is now reviewed by two members of the Editorial Board in addition to the Senior Associate Editor and the Editor. It is hoped that by involving more people in the editing of each issue, we will be able to continue to improve the size and quality of the Journal.

The financial picture has dropped significantly because of a decrease in advertising. It is hoped that this will be a temporary situation.

### BUSINESS MANAGER'S REPORT

**Mrs. Anne Shane**

*Statement of Receipts and Disbursements*

| | *Year Ended Dec. 31 1967* | *Jan. 1 — Sept. 15 1968* |
|---|---|---|
| TOTAL RECEIPTS | $28,474.87 | $18,785.95 |
| TOTAL DISBURSEMENTS | $27,123.29 | $21,126.37 |
| Operating Profit | $ 1,351.58 | |
| Operating Loss | | $ 2,340.42 |
| Savings Account | | |
| Balance (with accrued interest) | | |
| December 31, 1967 | $ 6,641.21 | $ 6,940.06 |

| | | |
|---|---|---|
| Deposits or Withdrawals | None | |
| Interest Accrued | 298.85 | |
| Balance | $ 6,940.06 | $ 6,940.06 |
| ASSETS | | |
| Operating Account | $ 3,234.90 | $ 2,968.81 |
| Savings Account | 6,940.06 | 6,940.06 |
| U. S. Treasury Bonds | 3,502.38 | 3,502.38 |
| Total | $13,677.34 | $13,411.25 |
| Less: Owing to Medical Society of Delaware | $ 2,407.59 | $ 3,387.59 |
| Net Assets | $11,269.75 | $10,023.66 |

## REPORT OF THE WOMAN'S AUXILIARY

**Betty J. Laggner, *President***

We are grateful for this opportunity to report to you. This report is actually based upon the accomplishments of all three counties, and upon the activities of all outstanding committee chairmen.

As of October 1, 1968, the Woman's Auxiliary to the Medical Society of Delaware has a total of 323 members.

One of the Auxiliary's outstanding projects this year was that of International Health. Due to the difference in dates of our county auxiliaries' and the state auxiliary's annual meeting, we have functioned only with the state chairman. This will be rectified this next year. All counties participated with 2,240 lbs. of pharmaceuticals to the Catholic Mission Board, and 615 lbs. to the Mennonite Mission Board. We also sent 75 lbs. of instruments to the Catholic Mission Board but we proudly announce that 4,250 lbs. of equipment went to the Mennonite Mission Board. This represents much time and great effort on the part of a truly wonderful state chairman.

AMA-ERF continues to be close to our heart. We are especially proud this year as our contribution of $1,819.61 represents great effort and teamwork in the counties. Each year we continue to increase our efforts with the sale of rosebushes, special greeting cards. memorial cards, note paper and pads. One county gave a fashion show while another had a Gourmet Taste and Auction Luncheon. This was delightful and lucrative. Many members invited lay friends, making this serve as good public relations in our small community. All counties have their members assessed. This year the Achievement Award goes to Kent County, giving $13.10 per capita.

The committee on Health Careers and Recruitment has had a busy year. The chairman has worked very hard getting in touch with each high school in the state to inform them of our grant-in-aid program. This was most gratifying as thirty applicants were screened and the most deserving ones were given either full or partial aid. The Ways and Means Committee of New Castle County sponsored a dance, fashion show and the sale of cookbooks, raising $2,980.25 for the scholarships. The two lower counties' assessments plus proceeds of a fashion show raised the amount to $3,680.00. Through the Rotary Club of Central Wilmington and the Milford Lions Club, our total amount to be used on screening days was $8,930.10, this being the most given in any year. Much praise goes to all these combined efforts.

As in past years, our Auxiliary remains highly organized in "Operation Handclasp," which is a committee to answer questions of newly arrived foreign born medical help. They have been entertained at tea, at dinner, and on trips to Winterthur and also visited various gardens on Garden Day. This permitted them to be introduced to others of similar nationality and culture.

The committee on Pre-School Vision Screening for the early detection of amblyopia has continued to work diligently throughout the year.

Looking for a new angle to attract less active members to attend auxiliary meetings and to become involved, we tried a "roving type workshop." Many times it is difficult to get members from each end of our state in one central area for a meeting, so taking a few members (busy chairmen) to several areas seemed profitable. AMA-ERF, Health Careers, and International Health Chairmen, plus the President and President-Elect made a visit to each county during February and March. This was previously announced and planned. We were greatly rewarded with 80% in attendance in our rural counties. Here we could inform our members of what we wanted to accomplish, when to do it, and how they could help us. We were most happy with the results as our above reports show.

With so many able chairmen, I feel we have definitely gone forward, maybe not as far as we planned, but with a satisfied feeling that we have in our way been helpful to our Medical Society and to our community.

It has been a privilege and a pleasure to present this report.

## THE ADVISORY COMMITTEE TO THE WOMAN'S AUXILIARY

**Harold J. Laggner, M.D., *Chairman***

The Advisory Committee to the Woman's Auxiliary of the Medical Society of the State of Delaware has been active throughout the entire year, assisting with the liaison between the Woman's Auxiliary and the Medical Society.

## COMMITTEE ON AGING

**Allston J. Morris, M.D., *Chairman***

The Committee on Aging held one meeting on December 6, 1967. It was the opinion of the Chairman that there were several items of importance to be considered. Should the State Society investigate or take action in any of the following areas?

The need for quality controls of the professional staffing of nursing homes. . . .

Mechanisms that may exist aside from the Medicare utilization mechanism to maintain quality medical records in nursing homes. . . .

The problem concerning doctors practicing within Delaware who are licensed to practice in adjacent states or doctors from Delaware caring for patients in nursing homes in adjacent states. . . .

Facilities existing in the state for periodic physical examination of apparently healthy old people. . . .

The need for some uniformity of admission policies to various institutions — such as the Governor Bacon Health Center, the State Home and Hospital for the Chronically Ill at Smyrna, the Delaware State Hospital, and the Emily P. Bissell Hospital — and the various extended care facilities.

## AMA-ERF COMMITTEE

**W. D. Shellenberger, M.D., *Chairman***

Delaware Physician Contributions to AMA-ERF

| | Number of Physicians | | Amount of Contribution | |
|---|---|---|---|---|
| | 1966 | 1967 | 1966 | 1967 |
| Total | 98 | 116 | $3,025. | $4,003. |

Your Committee feels the above figures are not representative of actual giving because many physicians contribute directly to the medical school from which they graduated; a certain percentage of the membership attended medical schools outside the United States, and donate to them.

To increase our statistical giving for 1968 the Committee urges the membership to use the AMA-ERF envelopes when donating to their respective medical schools and to remember the other three programs of the AMA-ERF:

The Institute for Biomedical Research — basic research in life sciences.

Student Loan Guaranteed Fund — guarantees $45 million in loans to medical students, interns and residents.

Unrestricted Fund.

## COMMUNITY COUNCIL ON EMERGENCY SERVICES

**William H. Duncan, M.D., *Chairman***

At the August 21, 1968, meeting the Liaison Work Group for Ambulance and Rescue Services in New Castle County voted unanimously to become the Community Council on Emergency Services for the Medical Society of Delaware. During the month of September, selected physicians of the Medical Society of Delaware representing the major specialties and the Committee on Trauma of the American College of Surgeons are being recruited to serve on the Council. The Council hopes to be able to provide advice to the ambulance and rescue services as well as to the overall improvement of all emergency care in services in the County and in the State. The first meeting to be held that will incorporate all the members of the new Council will not be until November 20, 1968. It is a pleasure for me to have been appointed as the representative of the Medical Society of Delaware to this most important Council.

## COMMITTEE ON EDUCATION

**William H. Duncan, M.D., *Chairman***

The Education Committee has continued to function in the formation of the Seaford Seminar Series that are held the second and third Tuesday of each month from October through June of each year. The Chairman requests that the Medical Society of Delaware publicly recognize their members who volunter to go to Seaford according to schedule and present the Seminars.

The following physicians lectured in the Seaford Seminars 1967 through 1968.

Robert Meckelnburg, M.D.
Ernest C. Shortliffe, M.D.
Richard Lennihan, M.D.
Alfred E. Bacon, Jr., M.D.
Armand DeSanctis, M.D.
Charles L. Reese, III, M.D.
Edgar R. Miller, Jr., M.D.
Richard Winkelmayer, M.D.
William H. Duncan, M.D.
Carlo A. Cuccia, M.D.
I. Favel Chavin, M.D.
William T. Hall, M.D.
Alvin Weiner, M.D.
William Ferris, M.D.
Edward Benz, R.N.
J. A. Arminio, M.D.
B. Z. Paulshock, M.D.
C. R. Donoho, M.D.

This year the Medical Society of Delaware did not sponsor the Radio Series, but have instead turned over to the Delaware Academy of General Practices the information available so that they would be in a position to sponsor these two-way broadcasts if they felt a need to do so.

## THE COMMITTEE ON FEDERAL MEDICAL PROGRAMS

**Stuart W. Rose, M.D., *Chairman***

The Committee on Federal Medical Programs of the Medical Society of Delaware was officially created on May 2, 1968, by the Council.

It was charged with the responsibility of closely following the developments of all Federal Medical programs with attention to their impact on the private practice of medicine. Attention will primarily be focused on Titles XVIII and XIX, Comprehensive Health Planning, and the Regional Medical Programs.

Every effort will be made by this Committee to keep informed on proposed projects and goals of the regional medical and comprehensive health-planning programs. This group of physicians will maintain liaison between the Society and the Delaware Valley Regional Medical Program. Along with this liaison, the medical profession is represented on the Regional Advisory Council, the advisory group provided by enabling legislation.

The physician must become a leader in all governmental programs related to the health care of all residents in our state.

## FORMULARY ADVISORY COMMITTEE

**Ward W. Briggs, M.D., *Chairman***

This Committee was created as a result of a motion passed at the Council meeting of July 18, 1968.

The guidelines for a community formulary which were proposed by the Delaware Pharmaceutical Society, Inc., were not adopted, but the Council did agree to exploring the feasibility of developing a limited community formulary consisting of fifteen or twenty of the most commonly prescribed drugs which have generic equivalent implications.

The Council authorized the appointment of four physicians to the Formulary Advisory Board to consider the selection of these fifteen or twenty commonly used drugs. The decisions of the Board in the further development of the program must be approved by the Medical Society. This is to be a Pilot Program.

These members of the Formulary Advisory Board have met once with the other members of the Board (three pharmacists, one osteopathic physician, and one dentist).

The concept of such a proposed formulary is in keeping with the philosophy of present federal legislation, and it is advisable that this be developed at the local level.

## GRIEVANCE COMMITTEE

**Albert Gelb, M.D., *Chairman***

The Grievance Committee held no meetings this year as there were no cases to be considered.

## COMMITTEE ON MATERNAL MORTALITY

**William D. Johnson, M.D., *Chairman***

The Maternal Mortality Committee has not yet met this year. We arranged a meeting with Catherine B. Middleton, M.D., the new Director of Maternal and Child Health Services.

The Committee is currently compiling information on all maternal mortalities in the state of Delaware for the past 10 years, and this report should be ready around the first of the year. We also hope to establish some regular pattern of Maternal Mortality Meetings to cover the entire state, with Dr. Middleton's help. We shall coordinate this activity with the Delaware Obstetrical Society.

## MEDICAL ECONOMICS COMMITTEE

**Davis G. Durham, M.D., *Chairman***

Due to a letter received by Doctor Preston from the State Insurance Commissioner, Mr. Robert Short, regarding a proposed rate increase for Physicians' and Surgeons' Professional Liability Insurance, the Medical Economics Committee of the State Society met with the Medical Economics Committee of the New Castle Medical Society. Mr. Short and Mr. Bill Barlow of J. A. Montgomery, Inc., were invited guests. Mr. Barlow provided statistics which were verified by Mr. Short, showing the reasons for the 75% increase in liability insurance. It is to be noted that this increase does not take into consideration the large number of large liability claims that have been filed for 1967 and 1968. Mr. Short discussed that there is a changing philosophy in the satisfaction of claims and that juries seem to be making awards based on the right of claim of the injured rather than on the basis of negligence of doctors. He suggests one approach to the problem would be to join with other groups faced with the same situation to seek legal relief by having negligence defined and/or by having a limitation placed on the amount of recovery or on the amount of professional liability.

The Medical Economics Committee recommended to the Council that the Medico-Legal Committee pursue with other interested groups, the legislation needed to have negligence defined and a reasonable limit put on professional liability. The Insurance Commissioner agreed to sponsor such legislation if requested.

This should be an area of vital concern to all physicians. We must realize that increased claims can only result in increased premiums.

During the first year of operation of PRO Fund, Inc., from September 29, 1967, to September 30, 1968, the total asset value of the Fund increased from $173,000 to $9,919,636.44 and the per share value from $9.92 to $10.86, an increase of 9.5%. During the same period the Dow Jones Industrial averages increased 1.0% and the New York Stock Exchange composite 7.4%.

The initial transfer of Trust Assets in the Delaware plan was made on November 5, 1967. The per share value at that time was $9.56 or 13.0% change per share value as of September 30th, 1968. In addition, a 6¢ dividend was paid in April of 1968.

## COMMITTEE ON MEDICAL SCHOLARSHIPS

**Gordon Keppel, M.D., *Chairman***

The Committee concluded from the returned questionnaires concerning the extent and nature of the Society's contribution to Delaware medical students that we had no major consensus of opinion. Slightly more than half voted to continue the program as it is now structured.

The Committee is aware of the far-ranging plans in medical education being studied at the present time, and hopes to keep its decisions in step with the developments.

## MEDICAL SCHOOL FOR DELAWARE COMMITTEE

**C. Anthony D'Alonzo, M.D., James E. Marvil, M.D.,** ***Co-Chairmen***

The minutes of the March 24, 1968, meeting of our Committee which are available through the Medical Society of Delaware supplement this report by filling in details of Doctor Truslow's proposal for a medical school.

We believe that the Council should go on record as approving the proposal of Doctor Truslow. All of our efforts should be directed to expedite this plan, that we urge the Governor, the new University of Delaware President, and the Legislature to act on it as quickly as possible; that as soon as the plan is inaugurated, the Medical School Committee of the Medical Society of Delaware be retained to dynamically and periodically study and project a plan for a four-year school in Delaware, and that an effort be made to more sharply separate the Delaware Foundation and the Medical School Committee on the lines mentioned previously.

## COMMITTEE ON MEDICAL SERVICE AND PUBLIC RELATIONS

**Leonard P. Lang, M.D.,** ***Chairman***

I. The radio program, "Ask Your Doctor," continues to be extremely popular with the public, and the physicians who have given so willingly of their time for this public service are to be commended.

II. The Society Office has an informal Physician Placement Service which has been quite active this year.

Although the Society did not have an exhibit at the Delaware State Science Fair this year, they did, however, contribute $100.00.

III. The Medical Explorer Post with John H. Furlong, Jr., M.D., advisor and Jack Zahn, M.D., associate advisor, continues to be successful. It is hoped that posts can be established in Sussex and Kent Counties this year.

IV. The speaking bureau organized to speak on sex education has been expanded to include a variety of topics.

V. The Society is exploring the possibilities of implementing and promoting an annual Nurses' Recognition Day.

VI. The Delaware Association of Medical Assistants should be commended for the services it provides the Society during its annual meeting.

## MEDICARE ADJUDICATION COMMITTEE

**Sidney Stat, M.D.,** ***Chairman***

The Medical Society of Delaware continued to provide a medical committee to recommend amounts to be paid to physicians in those cases referred to it for adjudication during the latter part of 1967 and carried over to 1968 for medical services rendered to dependents of servicemen.

Inasmuch as the Office for the Civilian Health and Medical Program of the Uniformed Services has entered into a two-party agreement with Blue Cross-Blue Shield of Delaware, Inc., and Blue Cross-Blue Shield of Delaware, Inc., in reimbursing the physician on a usual and customary basis, it is the recommendation of this committee that the Medicare Adjudication Committee be omitted from the roster of committees.

## COMMITTEE ON MEDICAL-LEGAL AFFAIRS

**James T. Metzger, M.D.,** ***Chairman***

The Malpractice Screening Panel has continued to function with good effect. Cases are being heard at the rate of approximately one every month, and these have been resolved either by settlement or acquittal without any newspaper publicity.

## COMMITTEE ON MENTAL HEALTH, ALCOHOLISM, AND DRUG DEPENDENCE

**H. Thomas McGuire, M.D.,** ***Chairman***

Because of the death of Doctor Herman J. Bennett, Chairman, there was a new chairman appointed for this committee during the year.

The Committee is seeking to learn more about the Alcoholic Clinic at the Department of Mental Health under the direction of Mr. Leon Petty, Clinical Psychologist, the Alcoholic Clinic in the Memorial Division, WMC, under the direction of Doctor Joyce Z. Pearson, and the Methadone Clinic in the Delaware Division, WMC, under the direction of Doctor William Vandervort.

The recent Supreme Court decision in the Powell case has been of interest to the Committee. The sense of the decision is that the diagnosis of alcoholism is no defense against a charge of public drunkenness. An opposite decision could have meant that the hospital or clinic would replace the jail as the primary agency for the handling of intoxicated persons picked up by the police.

## COMBINED REPORT OF PREPAYMENT AND MEDICAL REVIEW COMMITTEES

**R. Douglas Sanders, M.D.,** ***Chairman***

The Medical Review Committee is a subsection of the Prepayment Committee. Its work has increased considerably during the past year. About 45% of the cases considered have been in connection with the prevailing fee program. This is the work for which the subcommittee was originally appointed.

This is the only authoritative professional body to which the carrier may turn for advice and counsel. In consequence some 55% of the work has been matters connected with medicare and medicaid.

Recently the Council of the Society has been asked to instruct the prepayment committee to render advice and adjudication in disputed claims in these categories. It has also become apparent that some utilization review mechanism for such claims will be necessary, and the prepayment committee has asked that they be instructed as to their duties in this regard.

The Prepayment Committee has established the principle of investigating and recommending any extension of the prevailing fee program well in advance of final negotiation by Blue Cross-Blue Shield so that this organization may proceed with full authority of the Society in any admission of new groups. This has been approved by the Council, and the enlargement of this business during the past year has amounted to about 27% increase in subscribers.

The Prepayment Committee has asked for and the Council has set up a mechanism whereby committee action on payment for services of physicians involving groups of cases or broad principles may be further reviewed if parties at issue are still dissatisfied.

## COMMITTEES ON MEDICINE AND RELIGION

**Thomas H. Hogshead, M.D., *Chairman***

Richard N. Taylor, M.D., attended the Regional Meeting of State Chairmen of the Committee of Medicine and Religion in New York conducted by the Rev. Dr. Paul B. McCleavy, Head of the Department of Medicine and Religion of the American Medical Association. Doctor Taylor made a comprehensive report of this meeting for publication in our *Delaware Medical Journal.*

Reverend Roy E. Raymond, Chaplain Supervisor, WMC, and Reverend Lloyd Casson of St. Andrew's Episcopal Church were appointed to the committee and filled a gap that has long existed in our program. Reverend Raymond wrote a comprehensive paper entitled "A Pastoral Analysis of the Autopsy" which has been accepted for publication by the *Delaware Medical Journal* and will appear shortly. Unfortunately, Reverend Raymond has left Delaware for another assignment. He has suggested the appointment of Reverend Charles B. Hart who has accepted and has been approved by our President. Marc A. Woolley, M.D., who recently finished his internship at the Wilmington Medical Center has accepted membership on our Committee.

The Committee was involved in helping plan and organize the Methadon Rehabilitation Program for heroin addicts at the Wilmington Medical Center. This program is headed by William J. Vandervort, M.D., and has had extensive coverage in the news media.

## SCHOOL HEALTH COMMITTEE

**E. T. Gliwa, M.D., *Chairman***

This committee met to discuss several problem areas which presently exist primarily in health education. It was noted with enthusiasm that as of July 1, 1968, the State Board of Education has secured the services of a State School Nurse Supervisor.

Your Committee has recommended that the State Board of Education provide for a Coordinator of Health Education at the state level. Because of the recent interest in health and family life education by our schools, the Committee was concerned about the level of competence among our present and future teachers in this special field. Steps should be taken to assure that our teachers are adequately prepared to undertake this responsibility by requesting our state institutions of higher learning to make health education a required course for those graduates preparing for a degree in education and also requesting that the State Board of Education require a course in health education as a prerequisite for certification. With this in mind your school health committee offers two resolutions which will be considered later in the proceedings.

## COMMITTEE ON VENEREAL DISEASE

**Donald Schetman, M.D., Chairman**

The Committee has continued its efforts to amend Section 702 of the Delaware Code dealing with the reporting of Venereal Disease. The amendment would require the reporting of all reactive serological tests for syphilis, as presumptive evidence of venereal disease, as well as positive smears and cultures in cases of suspected gonorrhea to the public health department. In order to satisfy the objections raised regarding the patient's anonymity, the committee felt that a satisfactory compromise could be reached by reporting such cases by name or number. In this way, the health department could offer its services, ie, epidemological case finding among sexual contacts, treatment, etc., to the physician; the physician having the right, however, to accept or reject such services. This compromise amendment is acceptable to the Council of the Medical Society of Delaware and should soon be presented to the legislature.

The status of the fluorescent antibody test for the detection of gonorrhea in the female was discussed by the committee. Doctors Porter and Holloway have been in contact concerning a possible pilot study utilizing female patients with suspected gonorrhea and comparing the relative efficacy of the currently used cultural methods of identification of the organism with a combination of cultural methods and the fluorescent antibody technique.

It should be of interest that the fluorescent treponemal antibody test is now being used in lieu of the treponema pallidum immobilization test by the health department. The FTA absorption test is as specific a test as the TPI, while it is both technically easier to perform and is much more sensitive.

## AMA HOUSE OF DELEGATES

**H. Thomas McGuire, M.D., *Delegate***

Actions of the Board of Directors approved by the House of Delegates at their 21st Annual Convention and 21st Clinical Convention and other business are recorded in the Medical Society files and available to members.

## REPRESENTATIVE TO THE DELAWARE ACADEMY OF MEDICINE

**Norman L. Cannon, M.D.**

As part of its long range planning, the Academy acquired two properties immediately adjacent to the parking lot. At the present time, these properties are rented until additional properties are acquired. Redecoration of the Auditorium as well as installation of the most modern audiovisual facilities are being considered by the Executive Committee.

The Library is now open on Monday and Wednesday until 9:00 p.m. There was very little change as to the total membership of the Academy during the past year. Lewis B. Flinn, M.D., was elected to honorary membership in the Academy.

The annual lecture-meeting will be held on January 22, 1969, and the speaker will be George E. Bass, Assistant Professor of Classical Archaeology, University Museum, University of Pennsylvania.

The Student Financial Aid Committee this July granted loans to 26 individuals in the total amount of $30,000.00. Since the inception of the program, a total of $121,400.00 has been distributed in loans and grants to 69 individuals.

## AMERICAN CANCER SOCIETY

**Oscar N. Stern, M.D., *Liaison***

The American Cancer Society distributed the *CA-Journal for Clinicians, Cancer News, Journal Cancer,* books and publications to physicians, schools of nursing, hospital staff rooms, libraries and medical residents, as well as kits of materials to student practical nurses in New Castle and Kent Counties. Copies of *Cancer Statistics* and of the monograph, "Malignant Lymphomas," were sent to physicians. Medical affairs and public information literature was distributed to physicians' and dentists' offices, hospital clinics and the Visiting Nurse Association.

Three physicians addressed three different groups. Eight seminars were held. A $3,000 scholarship grant to the University of Delaware for eight undergraduate students in the biological sciences was made. A General Division staff nurse was given a scholarship for a three week cancer nursing course at Memorial Hospital and New York University. A total of 118 films were shown. Speaking engagements were filled by 18 physicians. Grants were renewed in the amounts of $650 and $5,570.

The Public Health Education Committee fulfilled its usual function of distributing literature to business employees and customers, clubs and organizations, neighborhood facilities, schools and colleges. The Public Information Committee circulated ACS publicity material through state newspapers, radio and TV programs, displays, exhibits, and films.

The Patient and Community Services Committee continued its activity in serving the public through nursing care and medical supplies.

## THE DELAWARE HEART ASSOCIATION, INC.

**Alfred E. Bacon, Jr., M.D., President**

The DHA has, in the past year, made two major changes; one, we have employed an experienced Executive Director, Mr. John Talbott, formerly Associate Director of the Ohio Heart Association. Under Mr. Talbott's skilled administration, we have made many changes in every sphere of operation from the purely administered function of bookkeeping, to the more important function of development of programs which increase the services of the DHA to physicians and citizens throughout the State of Delaware. A new full time Program Director, Roberta Schwartz, is charged with this responsibility.

The DHA is currently being reorganized on a 3-county basis within this State so that each county will function independently, having similar programs so that each citizen could benefit without the dominance relating to New Castle County.

In addition, we have participated with each of the other major voluntary Health Organizations of the State to meet jointly at regular intervals, so that programs relating to the Education and Health of diseases within their sphere will coordinate with our efforts to effect a more effective utilization of the voluntary funds which have supported these health agencies. The DHA coordinates with the Health Planning Council and Comprehensive Health Program of the Regional Medical Program of the Greater Delaware Valley.

## INTERAGENCY COUNCIL ON SMOKING AND HEALTH

**James M. Hofford, R.M., *Representative***

In addition to the wealth of material distributed to schools plus film showings in all counties, four physicians addressed classes or assembly programs in schools.

Mrs. Robert Frelick, PTA Council Representative, filled several speaking dates in schools on smoking and health.

Smoking and health programs were held in a total of 24 elementary, 20 junior high and 22 high schools (public, private and parochial) in Delaware. Teacher and reference material were also given out.

Copies of the book, "Freckle Face Jimmy and the

Dragon," were placed in all elementary school libraries in the state during January.

### DELAWARE DIABETES ASSOCIATION

**Herbert M. Baganz, M.D., *Liaison***

Much interest and effort has been given Delaware; the first state to launch a year-round "WHY WAIT?" diabetes detection drive. Free tests are performed every Wednesday at 11 locations throughout the State of Delaware. Dextrostix used for the tests were purchased and supplied by the State Board of Health.

The "Mothers of Diabetic Children" as well as the "Young People with Diabetes Group" (teen-age diabetics) meet 4 times a year for discussion and films, together with Physician or Dietitian. There are approximately 81 members in these combined groups.

Receipt of $100.00 from the American Diabetes Association for Campership Assistance was helpful in enabling the Delaware Diabetes Association to completely finance 3 diabetic children to camp this summer.

### DELAWARE TUBERCULOSIS AND HEALTH SOCIETY

**James M. Hofford, M.D., *Liaison***

Statistics obtained from the Division of Vital Statistics of the Delaware State Board of Health indicate there has been relatively no change in new tuberculosis cases diagnosed in comparison with the same period last year.

The two mobile units of the Society and the State Board of Health continue to play an important role in case detection. It is felt with newer and more modern equipment, a more selective type of case finding can be conducted. Last year, approximately 85,000 70mm x-rays were taken by the mobile units and at the Society.

In respiratory disease research, the Society still continues to support the Pleural-Pneumonia-Like-Organism Laboratory along with the Wilmington Medical Center, Delaware Division. This laboratory is under the direction of William J. Holloway, M.D., and is entering its third year of operation.

Another respiratory disease project the Society continues to support, along with the Wilmington Medical Center, Delaware Division, is the Pulmonary Function Laboratory. This laboratory plus similar work at the Emily P. Bissell Hospital is a necessary adjunct for the Treatment of Delaware's R. D. patients.

The Society is very active in the field of Air Pollution. This past year it was one of the sponsors of the highly successful "Air Pollution Forums" held at the Medical Society Building.

Financial support has been given to the University of Delaware, Nursing School of Wilmington and Wesley College. The Society is also sponsoring a health education series with the Extension Division of the University of Delaware and The Association of Delaware Hospitals, Inc.

Other areas of joint cooperative efforts include work with the Visiting Nurse Association, the State and City Departments of Public Instruction, and Wheels for the Handicapped in Kent and Sussex Counties.

### DELAWARE PHARMACEUTICAL SOCIETY

**Harry Taylor, M.D., *Liaison***

The Liaison Committee to the Delaware Pharmaceutical Society was created by the Council of the Medical Society of Delaware at its meeting on May 25, 1967, for the purpose of providing channels of communication and discussion in areas of common interest to both societies.

The joint committees met several times during 1968 to consider the appointment of an advisory board and the creation of a formulary for practitioners of medicine, osteopathy, dentistry and pharmacy.

Guidelines were drawn up and submitted to the council with the recommendation that they be approved and implemented.

I greatly appreciate the time and effort contributed by fellow members, Doctors Edward M. Bohan, Everett D. Bryan, William O. LaMotte, Jr., and Peter P. Potocki.

### MENTAL HEALTH ASSOCIATION OF DELAWARE

**H. Thomas McGuire, M.D., *Liaison***

New areas of mental health education were explored and initial plans made for additional programs.

Patient Services and Community Services were broadened to meet the needs of Delaware.

Emphasis in '69 will turn toward programs not only to prevent mental illness but to help foster vitality and well-being throughout the community. Every available resource will be utilized in recruiting the manpower . . . to handle the tools of education . . . which will build, in Delaware, a favorable social climate, thus, promoting the mental health of its citizens.

### THE CHILD DIAGNOSTIC AND DEVELOPMENT CENTER OF DELAWARE, INC.

**Henry H. Stroud, M.D., *Director, Liaison***

I. On December 31, 1967, the Child Diagnostic and Development Center of Delaware completed its third full year of service as an evaluation clinic for handicapped children from the State of Delaware.

On January 1, 1967, a permanent method of financing for the operation of the Child Diagnostic and Development Center became available through Children's Bureau, Department of Health, Education and Welfare. With the change of funding, a change of administration was required to comply with Federal Regulations. Through the year 1967 the Center was administered by the Delaware State Board of Health, and the previous Board of Directors changed in function to an advisory body.

With the change of administration, changes in personnel were necessary to comply with established standards for evaluation clinics for retarded children supported through Children's Bureau. Staff composition during 1967 is as follows:

Director — Henry H. Stroud, M.D.
Clinical Psychologist — Fred A. Stonesifer, Ph.D.
Chief Social Worker — Mrs. Alice Brandreth, MSU.
Medical Social Worker — Mrs. Leafy Strayhorn, MSW.
Nurse Coordinator — Mrs. Kathleen Kobus, BSN.
Registered Professional Nurse — Mrs. Marian McLachlan, RN.
Child Psychiatrist — Peter D. Schindler, M.D.
Speech Therapist — Mrs. Gretchen Voorhees

II. The stated objectives of the Center are: to provide patient services; to provide community services; and to provide an information and referral service for children with handicaps.

III. The total expenditures for the year 1967 by the Center amounted to $101,486.51, or an average cost of $277.30 per patient.

IV. During the past year only 10% of patients seen were from Kent and Sussex Counties. It appears that a satellite center will be required in the lower part of the State to provide the proper diagnostic service. The Governor's Interagency Committee for Mental Retardation has been considering this need for some time, and plans are being formulated for providing increased services in lower Delaware.

With the change from a calendar year to a fiscal year under the Children's Bureau, it is hoped that annual reports in the future may be changed to the same basis.

## STATE BOARD FOR VOCATIONAL REHABILITATION

**Martin B. Pennington, M.D.,** ***Liaison***

At the September 26, 1968, Council meeting of the Society, a special committee on rehabilitation was established. It was the feeling of the Council that a special committee within the Medical Society would help markedly in charting a productive course not only for the Rehabilitation Division but also for the direction that rehabilitation resources of all kinds may take in Delaware.

## DELAWARE ASSOCIATION OF MEDICAL ASSISTANTS

**Carl I. Glassman, M.D.,** ***Liaison***

The Delaware Association of Medical Assistants held its Mid-Annual Meeting on February 17, 1968, in which both business and educational programs were conducted. Its membership was increased over the previous year's complement.

Two of the members of the Association were appointed advisors at the Brandywine Junior College to the medical secretarial students. Although these members are paid an honorarium for their services, they have returned the honorarium to the charitable fund of the Association. The Association has awarded a $200.00 scholarship to a first year student at the Brandywine Junior College this year to help continue that student's second year of education.

This Advisor again urges the State Medical Society to find means to publicize the good works of this very noble Association.

## REPORT OF THE NOMINATING COMMITTEE

**Charles M. Moyer, M.D.,** ***Chairman***
**Norman P. Jones, M.D.**
**Leonard P. Lang, M.D.**
**Robert F. Lewis, M.D.**
**R. Douglas Sanders, M.D.**

Your Committee on Nominations has met and considered positions to be filled for the year October, 1968 through October, 1969. We respectfully submit the following nominations:

Vice-President — Joseph A. Elliott, M.D. — Laurel
Secretary — Joseph W. Abbiss, M.D. — Wilmington
Treasurer — Lawrence Katzenstein, M.D. — Wilmington
Representative to the Delaware Academy of Medicine — Norman L. Cannon, M.D., — Wilmington

*Committee on Program*

H. Thomas McGuire, M.D. — Chairman, Wilmington
Herman Rosenblum, M.D. — Wilmington
Charles L. Minor, M.D. — Wilmington
G. Dean MacEwen, M.D. — Wilmington

*Committee on Publications*

Robert B. Flinn, M.D. — Chairman, Wilmington
Davis G. Durham, M.D. — Wilmington
Joseph W. Abbiss, M.D. — Wilmington
Bernadine Z. Paulshock, M.D. — Wilmington
William J. Holloway, M.D. — Wilmington

*Committee on Public Laws*

Allston J. Morris, M.D. — Chairman, Wilmington
Rhoslyn J. Bishoff, M.D. — Dover
Christopher R. Donoho, M.D. — Wilmington
Ronald C. Corbalis, M.D. — Wilmington
Carl I. Glassman, M.D. — Wilmington
Floyd I. Hudson, M.D. — Dover

Gerald J. Savage, M.D. — Wilmington

*Committee on Budget*

Lawrence Katzenstein, M.D. — Chairman, Wilmington
Charles Allen, M.D. — Dover
A. E. Bacon, M.D. — Wilmington
James Beebe, Jr., M.D. — Lewes
Charles Walker, M.D. — Wilmington

*Members of the Board of Trustees, Blue Cross-Blue Shield of Delaware, Inc.*

Conley L. Edwards, M.D. — Wilmington
John J. Egan, M.D. — Wilmington
James M. Chase, Jr., M.D. — Dover
H. Thomas McGuire, M.D. — New Castle
John M. Levinson, M.D. — Wilmington
Robert F. Lewis, M.D. — Seaford

*Board of Medical Examiners*

Lawrence M. Baker, M.D.
David A. Levitsky, M.D.
W. Philip Portz, M.D.
Charles Allen, M.D.
Norman P. Jones, M.D.
Daniel J. Preston, M.D.
Joseph W. Abbiss, M.D.
John W. Alden, Jr., M.D.
James M. Chase, Jr., M.D.
Robert L. Meckelnburg, M.D.

Doctor Moyer, President-Elect, recommended that the presidents of the county societies be invited to attend all Council meetings so that they will be informed of business conducted at a state level.

## RESOLUTIONS

### Resolution No. 1

Whereas, it is becoming increasingly apparent that health and family life education needs to be included in our public school system, and

Whereas, knowledge of the human body and its behavior in health and disease is an important part of preparation for living in our society, and

Whereas, it is desirable that instruction in this area be offered to every student from kindergarten through high school, and

Whereas, preparation for such teaching has not been required on a general basis; therefore be it

*Resolved,* that this society urge the State Board of Education to require a course in health education as a prerequisite for teacher certification.

School Health Committee
Edward F. Gliwa, M.D.
*Chairman*

*Report of the Reference Committee*

The Committee recommends the adoption of this resolution. The resolution was adopted.

### Resolution No. 2

Whereas, it is desirable that health and family life education be included in the curriculum of all schools, and

Whereas, it is essential that teachers be equipped educationally to adequately provide this type of instruction, and

Whereas, preparation for such teaching is not now included or required in the curricula of our state institutions of higher learning; therefore be it

*Resolved,* that this society urge that a course in health education of adequate substance be required of those students who are preparing for the teaching professions, and be it further

*Resolved,* that these same institutions be urged to institute graduate and extension courses so that those already graduated may obtain adequate preparation to prepare them in the area of health instruction.

School Health Committee
Edward F. Gliwa, M.D.
*Chairman*

*Report of the Reference Committee*

Th Committee recommends the adoption of this resolution. The resolution was adopted.

### Resolution No. 3

Whereas, the Liaison Work Group for Ambulance and Rescue Service of New Castle County has been informally meeting to insure the best of emergency services in the community, and

Whereas, the Medical Society of Delaware welcomes sponsorship of such a group, and

Whereas, the Medical Society of Delaware has requested said Liaison Work Group to be a Committee of the Medical Society of Delaware to be known as The Community Council on Emergency Services, and

Whereas, they have accepted the proposal, now, therefore, be it

*Resolved,* that the following members of the Community Council on Emergency Service be publicly recognized at the House of Delegates meeting.

*City of Wilmington*

Albert A. Poppiti — Commissioner of Public Safety
Captain John T. McCool — Bureau of Police
Captain Ritchie Staats — Bureau of Fire

*Delaware State Police*

Captain Edward Horney

*Doctors of Medicine*

William H. Duncan, M.D. — Member-at-large, Medical Society of Delaware
L. Mario Garcia, M.D. — Surgical Representative, Medical Society of Delaware
Alfred E. Bacon, Jr., M.D. — Medical Representative, Medical Society of Delaware
Charles L. Miller, M.D. — Pediatric Representative, Medical Society of Delaware

John M. Levinson, M.D. — Obstetrical Representative, Medical Society of Delaware
Theodore B. Strange, M.D. — Committee on Trauma, American College of Surgeons
Raphael E. Alzamora, M.D. — St. Francis Representative

*Doctor of Osteopathy*

Larry Kirifides, D.O.

*New Castle County Police and Ambulance Service*

Captain Henry Snedecker — Assistant Chief
Norman Ward — Chief Dispatcher

*Volunteer Ambulance and Rescue Committee*

George Mycock — Co-Chairman
Robert Stone — Member
Sidney Silverman, D.D.S. — Member

*Wilmington Medical Center*

Frieda McMullan, R.N. — Associate Director of Nursing for Ambulatory and Special Services
Joan Wright, R.N. — Emergency Services Supervisor, Ambulatory Services
E. Morton Ainscow — Supervisor of Transportation

*St. Francis Hospital*

James Moran — Assistant Administrator
Sister Thomas Francis — Outpatient and Emergency Supervisor
Mary Ann Mulrooney, R.N. — Emergency Room Head Nurse

*Delaware Association of Nursing Homes*

Robert C. Templer

*Riverside Hospital*

Henry R. Cooper — Administrator

Submitted by,
William H. Duncan, M.D.

*Report of the Reference Committee*

The Committee recommends the adoption of this resolution omitting the word *publicly* in the last sentence. The resolution was adopted with noted changes.

### Resolution No. 4

Whereas, the Medical Society of Delaware was instrumental in establishing the Medical Examiner's System in Delaware in 1955 and

Whereas, there have been constant efforts on the part of some individuals to undermine the functions and progress of the Office of Medical Examiner and

Whereas, the first such attempt was successful in 1961, when some amendment to the laws of 1955 reopened the doors to the coroners of the counties by placing them on the Board of Post-Mortem Examiners, as non-voting members and

Whereas, as a follow-up to the first legislative attempt and success of 1961 there have been recent legislative attempts adversely affecting the Medical Examiner System and

Whereas, Delaware is unique in this country, in having a dual system, Medical Examiner and Coroner, with resultant friction and confusion, therefore be it

*Resolved,* that the Council of the Medical Society of Delaware go on record as supporting the action of the officers of the Medical Society in this regard during the past year, and as favoring legislation which will abolish the office of Coroner, and be it further

*Resolved,* that the House of Delegates of the Medical Society of Delaware does hereby reaffirm its dedication to the abolishment of the office of Coroner.

Rhoslyn J. Bishoff, M.D.

*Report of the Reference Committee*

The Committee recommends the adoption of this resolution. The resolution was unanimously adopted.

### Resolution No. 5

Whereas, physicians because of their close working relationship with those in the nursing profession recognize the significant health care contributions continuously being made by nurses and their dedication to the task; now, therefore, be it

*Resolved,* that the Medical Society of Delaware does hereby reaffirm its recognition of nurses who skillfully serve their fellow man with pride and distinction.

Leonard P. Lang, M.D.

*Report of the Reference Committee*

The Committee recommends the adoption of this resolution. The resolution was adopted.

### Resolution No. 6

Whereas, cigarette smoking has been proven to be a cause of pulmonary disease and

Whereas, the hospitals of the State of Delaware are dedicated to the treatment of disease, now, therefore, be it

*Resolved,* that the Delaware State Medical Society recommend to the hospitals of the state that the sale of cigarettes and tobacco products be banned from their premises.

Frank T. O'Brien, M.D.

*Report of the Reference Committee*

By a vote of three to two the Committee does not recommend the adoption of this resolution. The resolution was not adopted.

### Resolution No. 7

Whereas, the United States Government has at least become cognizant of air pollution and a commission has been set up in Delaware for the control of said air pollutants, now, therefore, be it

*Resolved,* that the Delaware State Medical Society recommend to the hospitals of the state that they control their smoke emissions from their stacks by a suitable device.

Frank T. O'Brien, M.D.

*Report of the Reference Committee*

By a vote of three to two the Committee does not recommend the adoption of this resolution. The resolution was not adopted.

H. Thomas McGuire, M.D., was the recipient of the Distinguished Service Award given annually by the Medical Society of Delaware in recognition of outstanding service and substantial contributions to medicine in the State of Delaware.

In memorium to the members of the Society who were lost through death during the past year, the assembly arose for a moment of silence as the names were read:

J. Leland Fox
C. Leith Munson
Everett Aikman
Brice Vallet
Gerald A. Beatty
Lawrence Jones
Stanley S. Szypkowski

The House of Delegates then established the Academy of Medicine, Wilmington, as the site of the 1969 Annual Meeting to be held October 25, 1969. Whereupon, at 4:15 p.m., October 26, 1968, the 179th annual meeting was adjourned.

*The complete report of the Proceedings of the House of Delegates is on file in the Medical Society office and is available to members for reference.*

* * *

## EDITORIALS

*Continued from Page 382*

have all been exposed is admitting something undesirably weak about his character. He is willing to play a modified form of Russian roulette in exchange for his cigarettes. What then can and should be "the appropriate remedial action" recommended by the surgeon general?

We do not personally favor prohibition or strong curbs on the sale of cigarettes. This is even less likely to be effective than was the prohibition of alcohol. But what is the proper responsibility of our Society to itself and to its patients concerning the hazards of smoking? One method is insistance by all available means that the dissemination of the truth about cigarettes, a campaign for which there is no multi-million dollar advertising budget, be as energetically promoted as is the advertising of cigarettes.

Some smokers will keep on smoking but none can pretend that the data are not conclusive, or all in. The facts are in. The earth is round, it does revolve around the sun, and cigarette smoking is harmful.

*B. Z. P.*

## POINTS ABOUT JOINTS

*Continued from Page 381*

will relieve pressure on the spur. This supports the forward portion of the os calcis and changes the stress. Occasionally it is necessary to remove the spur surgically. This requires the performance of a thorough resection and means that the whole plantar surface must be smooth. The plantar ligament will re-attach itself without trouble. If the spur is approached from the lateral side, there will be less bleeding.

When a patient presents a hallux with a bad ingrowing toe nail or a painful ungual tip, a terminal Symes operation is in order. Care must be taken to remove every bit of nail matrix in this procedure or the nail will grow back and frequently stay subcutaneous. This is extremely painful and demands further extirpation.

The best way to treat a soft corn is to relieve pressure and then keep it dry. A one-inch square piece of toilet paper kept constantly between the toes will do it much better than lambs wool. If this fails, the spurs must be removed surgically.

* * *

## IN THE BEGINNING WERE THE WORDS . . .

"In our inquiries into any particular subject of medicine, our labours will generally be shortened and directed to their proper objects, by a knowledge of preceding discoveries."

These words, with which none of us will argue, were the first sentence of the article in the first issue of the *New England Journal of Medicine, January, 1812.*

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